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Facebook engagement on college students' interpersonal and intrapersonal functioning

Scott S. Deatherage
Purdue University

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For the degree of Doctor of Philosophy

Is approved by the final examining committee:

Heather L. Servaty-Seib, Ph.D.   Reynol Junco, Ed.D.

Chair

Eric D. Deemer, Ph.D.

Christopher D. Slaten, Ph.D.

Susan L. Prieto-Welch, Ph.D.

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Approved by Major Professor(s): Heather L. Servaty-Seib, Ph.D.

Approved by: Ala Sumarpungavan, Ph.D.   2/3/2015

Head of the Departmental Graduate Program   Date

FACEBOOK ENGAGEMENT ON COLLEGE STUDENTS'
INTERPERSONAL AND INTRAPERSONAL FUNCTIONING

A Dissertation

Submitted to the Faculty

of

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by

Scott S. Deatherage

In Partial Fulfillment of the

Requirements for the Degree

of

Doctor of Philosophy

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West Lafayette, Indiana

For my wife, who hates me less than she should. And for our children, who I hope will never know the ambivalence of a dissertation (unless the really want to).

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ABSTRACT

Deatherage, Scott S. Ph.D., Purdue University, August 2016. Facebook Engagement on College Students' Interpersonal and Intrapersonal Functioning. Major Professor: Heather Servaty-Seib, Ph.D.

In recent years college students have incorporated social-networking sites, and more specifically Facebook, into their daily lives. Facebook has received empirical attention; attention focused on what students are doing on Facebook, who its users are, and, more recently, why students access Facebook. However, researchers who have assessed motivations for accessing Facebook have emphasized how motivations are associated with certain activities, and have not simultaneously and directly examined how activities and motivations are associated with both maladaptive and adaptive factors of students' interpersonal and intrapersonal functioning. The purpose of the present study was to examine how Facebook engagement is associated with college student functioning. Data were collected from 208 undergraduate students attending a large Midwestern university and were analyzed using hierarchical multiple regression (HMR), simultaneous multiple regression (SMR), and canonical correlation analysis (CCA). The results indicated that the Facebook motivation to cope was negatively associated with conscientiousness; the motivation to enhance was positively associated with life-satisfaction and negatively associated with loneliness and identity distress; and the motivation to conform was negatively associated with social connectedness and positively associated with identity distress. Further, the results indicated that the

Facebook activity of social comparison was negatively associated with social connectedness; the activity of linking was positively associated with life-satisfaction and negatively associated with loneliness; and the activity of posting self-in-focus photos (i.e., "selfies") was negatively associated with social connectedness and life-satisfaction and positively associated with loneliness and identity distress. Finally, two Facebook Engagement variables were identified by CCA. The first, Common Facebook Engagement, was positively associated with identity distress. The second, Passive Social Monitoring, was positively associated with social connectedness and life-satisfaction. Overall, the findings suggest that counseling psychologists who work with college students could gain insight into college students' interpersonal and intrapersonal functioning by assessing both Facebook activities and motivations at intake and throughout the therapeutic process. Additionally, in accordance with the Self-Determination Theory of motivation, it may be helpful for counseling psychologists to be aware that college students' intrinsic motivation to access Facebook is likely positively associated with their interpersonal and intrapersonal functioning.

CHAPTER I. INTRODUCTION

Overview of the Problem

Today's college students highly value the Internet and have integrated it into all aspects of their lives. In fact, the 2011 Cisco Connected World Technology Report indicated that roughly 80% of college students worldwide perceive the Internet to be "close to" or "as vital" as air, water, food, and shelter (Cisco Connected World Technology Report, 2011). Although it is unlikely that Maslow (1943) would have included Internet access in his Hierarchy of Needs, college students have nonetheless incorporated the Internet into all life domains including school, work, and leisure activities (Oblinger, 2003; Pardue & Morgan, 2008). One way the Internet is commonly used by college students is as a tool to communicate with friends and family and this form of use appears related to desirable levels of social connectedness and loneliness (Jones, 2002; Cisco Connected World Technology Report, 2011; Malaney 2004; Subash, Kadian, Prasad, & Asif, 2012). With the advent of social-networking sites (SNS) like MySpace and Facebook, college students seem to be using the Internet for social communication in greater frequency than in years past. Facebook is among the most popular SNS on the Internet. Originally developed by college students for college students (Wilson, Gosling, & Graham, 2012), Facebook has grown widely in popularity since its debut in 2004 (Facebook, 2014).

The rapid rise of the use of Facebook has led to a void in the scholarly literature regarding possible links between college students' Facebook engagement and their interpersonal and intrapersonal functioning. Initial Facebook research was exploratory in nature and primarily focused on providing descriptive information regarding college students' general use, such as the number of hours spent and common activities. However, researchers have recently begun to assess the nuances of Facebook engagement in an effort to explain the "why" (i.e., motivations) underlying college students' Facebook use. The purpose of the present investigation is to examine the associations between college students' Facebook activities and motivations and how that Facebook engagement is simultaneously associated with maladaptive and adaptive factors of interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning. With this information, counseling psychologists working with college students will have a more comprehensive understanding of how college students' engagement in the virtual world of Facebook is connected with common variables of college students' functioning.

College students access Facebook many times and for many hours each day, and researchers have examined this use in the domains of interpersonal and intrapersonal functioning. Most of the exploratory Facebook literature assesses general use such as number of daily log-ins, hours of daily use, and associations between that general use and personality characteristics and individual differences. However, research routinely indicates that most college students access Facebook for many hours each day, and most researchers have found no significant differences regarding interpersonal and intrapersonal functioning between college students who have active Facebook profiles

compared to their peers without Facebook profiles. The level of general Facebook use has been associated with maladaptive factors of interpersonal functioning such as unsafe self-disclosure, cyberbullying and maladaptive intrapersonal functioning factors such as addiction and risky behavior (Salinas, Coan, Ansley, Barton, & McCraig, 2013). In contrast, general use has also been associated with more adaptive factors of interpersonal functioning such as perceived social support (Manago, Taylor, & Greenfield, 2012), social capital (Ellison, Steinfield, & Lampe, 2007) (i.e., the resources available to one through social interactions; Lin, 1999; Putnam, 2000) and adaptive factors of intrapersonal functioning such as identity expression (Hyllegard, Ogle, Yan, & Reitz, 2011; Pempek et al., 2009), psychological well-being (Ellison et al., 2007), and life-satisfaction (Manago et al., 2012). Despite these significant associations, time spent on Facebook is not a sensitive enough assessment to explain how the multidimensional website can be used.

Whereas many researchers assess students' general Facebook use and examine possible associations between that use and a number of interpersonal and intrapersonal factors, other researchers (e.g., Ross, Orr, Sisic, Arseneault, Simmering, & Orr, 2009) suggest that more nuanced elements of Facebook engagement (e.g., types of activities, motivations for use) beyond the basic level of use need to be examined. Knowing, for example, that college students commonly engage in both communicative (e.g., private messaging, Timeline posts) and non-communicative activities (e.g., uploading photos, passive social monitoring) allows for a more comprehensive understanding of college students' Facebook use than simply assessing number of hours logged in each day. In addition, knowing that general Facebook use has been associated with the motivation to

facilitate stronger ties with friends and with higher levels of relationship satisfaction with acquaintances (Acquisti & Gross, 2006; 2007; Ellison et al., 2007; Joinson, 2008) provides more useful information than simply knowing that college students report spending between two and seven hours logged in to Facebook each day.

With regard to type of activities, college students more frequently report engaging in non-communicative Facebook activities than communicative activities. Common non-communicative activities include viewing others' main profile page, pictures, videos, and personal interests (Govani & Pashley, 2005; Lampe, Ellison, & Steinfeld, 2007; Lyndon, Bonds-Raacke, & Cratty, 2011). In general, researchers find that college students view their friends' posted content more than posting their own content (Junco, 2012; Lyndon et al., 2011; Pempek et al., 2009). Common communicative activities include private messaging, chatting, and posting on friends' Timelines (Burke, Marlow, & Lento, 2010; Lampe, Ellison, & Steinfield, 2006). Further, college students report engaging in non-communicative activities with the majority of their Facebook friends, whereas communicative activities are more commonly directed toward a smaller group of friends with whom they share a stronger emotional connection (Burke et al., 2010; Lampe et al., 2007; Pempek et al., 2009).

User motivation to access Facebook has recently received empirical attention (Heinonen, 2011; Manago et al., 2012; Park, Kee, & Valenzuela, 2009; Sheldon, Abad, & Hinsch, 2011) and most of this attention has focused on possible associations between various motivations and maladaptive factors of interpersonal and intrapersonal functioning in college students. For example, being motivated to access Facebook in order to conform to a group has been associated with maladaptive factors of interpersonal

functioning such as loneliness (Brandtzaeg, Luders, & Skjetne et al., 2010), whereas being motivated to access Facebook in order to supplement real life relationships or expereinces has been associated with maladaptive factors of intrapersonal functioning such as narcissism (Carpenter, Green, & LaFlam, 2011; Gentile, Twenge, Freeman, & Campbell, 2012). Some researchers have begun assessing associations between Facebook motivation and more adaptive factors. For example, being motivated to access Facebook in order to communicate with peers has been associated with adaptive factors of interpersonal functioning such as student collaboration (Lampe, Wohn, Vitak, Ellison, & Wash, 2011) and peer relationship maintenance (Park, Jin, & Jin, 2011), whereas being motivated to access Facebook in order to express oneself has been associated with adaptive factors of intrapersonal functioning such as general life-satisfaction (Heinonen, 2011; Manago et al., 2012).

Although researchers have recently begun to assess more nuanced aspects of Facebook engagement (i.e., types of activities, motivations) in connection with college student functioning, they have not considered Facebook engagement within a development framework, nor is their research grounded in theory. From a psychosocial theoretical development perspective, college students establish identities as a result of navigating developmental tasks and challenges, particularly interpersonal and intrapersonal challenges presented in their environment (e.g., Arnett, 2000; Chickering & Reisser, 1993) and Facebook is now an integral part of the college environment. For Arnett (2007), development during this phase is about responding to the stressors of identity development by integrating summative experiences for a satisfying future in love, work, and other life domains. For Chickering and Reisser (1993) development

during this phase is about finding balance in a number of areas as students experiment with their interests, roles, and lifestyle choices and accept where they come from and who they are. Both theories emphasize that identity development for individuals occurs as a result of navigating interpersonal and intrapersonal challenges that present themselves within the environment. Therefore, it is critical for both researchers and practitioners focused on college students to gain a dynamic understanding of how students' Facebook engagement may interact with their development, including their interpersonal and intrapersonal functioning. Considering Facebook through a developmental lens will provide counseling psychologists with a perspective that allows for the SNS to be a fundamental component of college student life.

Rooting Facebook research in motivation theory will further contribute to counseling psychologists' understanding of how Facebook is engrained in college student life. The current literature on Facebook motivation is limited in its connection to theory, and therefore, it is a challenge for counseling psychologists to view this research in an integrated fashion and to apply the findings to practice. Further exploration into Facebook engagement by assessing different activities in combination with a number of different types of motivations may uncover new and important associations between these variables and college students' interpersonal and intrapersonal functioning.

With regard to motivation theory, Deci and Ryan's (1985; 2000; Ryan & Deci, 2000) Self-Determination Theory (SDT) can provide a theoretical base through which to view college students' engagement with Facebook, and further, allow for Facebook engagement to be viewed in a developmental context. SDT proposes that not only are motivations more important than chosen activities when considering interpersonal and

intrapersonal functioning, but also the type of motivation can contribute differently to overall functioning. SDT posits that all individuals are inherently motivated to initiate behaviors that directly contribute to attaining the innate psychological needs of competence, autonomy, and relatedness. Whether individuals are intrinsically motivated to engage in behavior for internal and self-fulfilling reasons or extrinsically motivated to engage in behavior for some external reward or end will contribute to how well those individuals grow and develop. Intrinsic motivation reflects the innate propensity to attain competency, autonomy, and relatedness, whereas extrinsic motivation fluctuates in the autonomy of individuals' motives and can therefore undermine the achievement of these three psychological needs. That is, regardless of the chosen activities, college students who are intrinsically motivated to access Facebook are more likely to experience adaptive interpersonal and intrapersonal functioning than college students who are extrinsically motivated to access Facebook. Therefore, Deci and Ryan (1985; 2000; Ryan & Deci, 2000) could argue that intrinsic motivations prime individuals to seek out experiences that Arnett (2000) and Chickering and Reisser (1993) argue lead to identity development.

Facebook research has expanded in recent years to explore areas beyond just general use, to a more nuanced focus on types of activities and underlying motivations. Research has suggested that college students engage in both communicative (e.g., private messages, chat) and non-communicative activities (e.g., passive social monitoring, photo uploading) many times and for many hours each day. Facebook use has been associated with certain maladaptive (e.g., loneliness, narcissism) and adaptive factors (e.g., social connectedness, life-satisfaction) of interpersonal and intrapersonal functioning, which has led some researchers to take a more comprehensive view of college student Facebook

engagement by including measures of underlying motivations for that engagement. This more comprehensive view of Facebook engagement has the potential to provide counseling psychologists with a clearer picture of students' engagement and to, therefore, better understand the intricate ways in which Facebook interacts with students' interpersonal and intrapersonal functioning. However, even researchers who have assessed Facebook motivations have chosen to emphasize how those motivations are associated with certain Facebook activities, and do not go further to simultaneously and directly examine how these activities and motivations are associated with both maladaptive and adaptive factors of students' interpersonal and intrapersonal functioning. Further the lack of focus on developmental issues and theory has meant that results cannot be interpreted and applied to a broader context.

Importance of the Present Study

The present study contributes to the practice of counseling psychologists in their work with college students as the findings provide theoretically-based (i.e., Arnett, 2000; Chickering & Reisser, 1993; Deci & Ryan, 1985), balanced (i.e., maladaptive versus adaptive), and nuanced (i.e., variety of Facebook activities, motivation for engagement) information regarding student Facebook engagement. As scientist-practitioners, counseling psychologists are informed by the vast literature bases aimed to educate them in their work with specific populations and the unique concerns within those populations. The literature informing counseling psychologists of college students' Facebook engagement is generally not theoretically-based and is heavily focused on more maladaptive, versus adaptive, factors associated with that engagement. By simultaneously assessing maladaptive factors (i.e., loneliness, identity distress) and adaptive factors (i.e.,

social connectedness, life-satisfaction) associated with Facebook engagement the present study provides counseling psychologists with a more balanced perspective which helps illuminate the subtleties which exist within the context and developmental period of college student life.

By exploring Facebook engagement in a nuanced manner (i.e., combining activities and motivations to explain variance in overall functioning) and from a theoretical base, the results of the present study provide useful information to counseling psychologists who work with college students. College student motivation has been assessed in a number of different life domains (e.g., academic, athletic, leisure) and their motivation to use specific Facebook activities has recently received increased attention. Whereas much of the literature emphasizing college students' Facebook motivation is more focused on how motivations are associated with Facebook activities, in the present study I assess how motivations and activities combine to associate with measures of interpersonal and intrapersonal functioning. In doing so, a broader understanding of college students' motivation to access Facebook emerges to provide counseling psychologists with needed information regarding college students' Facebook engagement.

Statement of Purpose

Counseling psychologists need theory-driven, balanced, and evidence-based guidance for interpreting college students' Facebook engagement and for intervening with college students' regarding their Facebook use. Studies have suggested that between 80-100% of college students use Facebook on a regular basis. Because a grounding value of the field is to train counseling psychologists to work with more normative populations,

they are among the primary mental health providers to college students; however, counseling psychologists certainly work with college students who present with more severe and persistent psychopathology, and the present study can provide insight into the lives of all college students regardless of functioning. Currently, the literature provides little useful information to counseling psychologists regarding college students' Facebook engagement, and how that engagement is associated with maladaptive and adaptive factors of interpersonal and intrapersonal functioning.

The purpose of the present study was to assess how the combination of Facebook activities and, particularly, the underlying Facebook motivations are associated with maladaptive and adaptive factors of college students' interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning. In addressing the associations between various Facebook activities and motivations with these maladaptive and adaptive factors of interpersonal and intrapersonal functioning, I provide counseling psychologists with more nuanced information regarding how college students are using Facebook. For example, based on the current Facebook literature, counseling psychologists may be under the assumption that asking college students about their time on Facebook provides sufficient information to conceptualize how Facebook engagement may be associated with current levels of functioning. With the results of the present study, counseling psychologists working with college students may learn about the need to assess Facebook engagement in a more nuanced way, which may lead them to ask more specific questions regarding students' types of Facebook activities and their motivations for accessing Facebook in a clinical setting. Additionally, the results of the present study may inform counseling psychologists to provide psychoeducation to college

students regarding their activities, and perhaps emphasizing their Facebook motivations which may be connected to their presenting concerns. The present study provides nuanced information about students' Facebook engagement so counseling psychologists working with college students are more prepared to explore students' interpersonal and intrapersonal functioning.

Terminology and Concepts

I use several terms that may have differential definitions in the scholarly literature and others that may be unfamiliar to readers. Therefore, I clarify my use of the specific terms offered below:

- I use the term *emerging adults* to refer to individuals between the ages of 18 and 29. Arnett (2000) suggested that individuals in this age range experience a similar set of identity explorations and relationship patterns with parents and peers. Elements of this study, including integration of developmental trends during this age range (e.g., Chickering & Reisser, 1993) benefit from this age restriction.

- I use the term *college students* to refer to full-time college students of any age (e.g., Chickering and Reisser, 1993).

- I use the term *Facebook engagement* as a broad phrase to refer to various details included in one's use of the social networking site Facebook. Included within this term are general Facebook use, Facebook activities, and Facebook motivations.

- I use the term *general Facebook use* to refer to the number of hours college students spend on Facebook and the number of times they access the site.

- I use the term *Facebook activities* to refer to activities in which one engages through the Facebook website (e.g., updating one's status, posting on a friend's

Timeline, uploading pictures, playing games).

- I use the term *Facebook motivation* to refer to the underlying motivations one has to access Facebook (e.g., to socialize, to conform to group norms).

- I use the term *Facebook motivation literature* to refer to the limited literature base that has begun to emerge that is focused on assessing underlying motivations for accessing Facebook.

- I use the term *interpersonal functioning* to refer to the current state of both maladaptive (i.e., loneliness) and adaptive (i.e., social connectedness) components of individuals' external relationships with others (Ryan & Deci, 2000).

- I use the term *intrapersonal functioning* to refer to the current state of both maladaptive (i.e., identity distress) and adaptive (i.e., life-satisfaction) components of individuals' internal, personal processes (Ryan & Deci, 2000).

Relevance to Counseling Psychology

Studying how college students' Facebook engagement is associated with interpersonal and intrapersonal functioning fits well within the field of counseling psychology. First, focusing on the college student population in a college setting is consistent with the history of the specialty of counseling psychology. Second, Facebook has brought about a societal shift in information and communication technology, and as counseling psychology is adaptive and responsive to society, counseling psychologists should strive to understand how Facebook is being used. Third, counseling psychologists are concerned with the person-environment fit and as such need to understand how Facebook exists within the college student environment. Finally, the present study fits

with the scientist-practitioner approach as it was informed by research and designed to contribute to clinical practice as well as future research.

College students have an extensive history as a target population for counseling psychologists. According to Gelso and Fretz (2001), over half of counseling psychologists work in academic settings or in college counseling centers. Many college students maintain intact personalities and are generally a population that functions well, but, due to their developmental tasks (e.g., Arnett, 2000; Chickering & Reisser, 1993), may experience distress on a normative level. Thus, college students are a reasonable population on which counseling psychologists are trained to focus. As such, an exploration into how Facebook engagement associates with maladaptive and adaptive factors of interpersonal and intrapersonal functioning will contribute to counseling psychologists' knowledge of and ability to work with college students.

Counseling psychologists are responsive to societal shifts, and as such need to be informed regarding common developments within their client population. With regard to the present study, not only is it important for counseling psychologists to be aware of that Facebook has become central to college student life, but they also need to be aware of the empirical and clinical shift which emphasizes motivation beyond general use and activities.. With the advancement of information technology in recent years, the Internet is playing a much larger role in college student interaction than in previous cohorts of college students. Facebook, in particular, has become an online environment where college students interact with others. An overwhelming majority of college students spend many hours logged in to Facebook each day, yet most of the previous empirical investigations into Facebook's influence in these students' lives and functioning are

unidimensional in how they operationalize Facebook use (e.g., hours on Facebook, activities engaged) only recently beginning to assess underlying motivations for this behavior. As Facebook has become an immensely popular venue for connecting users to information and each other, it is important that counseling psychologists gain insight into how Facebook engagement may be connected with variables indicative of normative disruptions to interpersonal and intrapersonal functioning. In this regard, it would be beneficial for counseling psychologists who are not engaged with Facebook to educate themselves in the utility of the site.

Counseling psychologists strive to conceptualize clients within their developmental and environmental context which now must include knowledge regarding Facebook engagement. As college students have incorporated Facebook into all life domains, it is necessary that counseling psychologists gain a broader understanding into how Facebook connects with the college environment.

The present study was informed by the literature and is designed to inform practice which is consistent with the scientist-practitioner model. The scientist-practitioner model requires that counseling psychologists approach science to learn new applications for theory. As Facebook has become a mainstay in college student social life, it is important to scientifically assess Facebook engagement and how that engagement is associated with common variables in college students' interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning. Additionally, this study is guided by the literature and designed to contribute to theory and practice by avoiding previous studies' operational and methodological limitations.

CHAPTER II. LITERATURE REVIEW

College students in the United States are in a unique developmental transition period. In an effort to maintain high academic achievement, quality social relationships, and interpersonal and intrapersonal functioning, college students must work to balance many areas of life. They are engaged in a great deal of internal and external exploration that can be both challenging and rewarding. Due to advances in technology, today's college students have unprecedented access to the Internet, a tool that can interact with their development and identity exploration. The Internet is now widely available on college campuses, and social-networking websites (SNS) like Facebook have quickly become a mainstay in college students' daily lives. This new aspect of college life (i.e., Facebook engagement) must be assessed empirically so counseling psychologists have a more comprehensive understanding of the context and environment in which today's college students' develop.

I provide a review of literature relevant to my proposed topic and research questions in this chapter. I first provide overviews of two theories of development relevant to college students, Arnett's (2000) theory of emerging adulthood and Chickering and Reisser's (1993) theory of college student development. In both cases, I emphasize the importance of interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning. Following these theoretical overviews, I offer a synthesis of the existing research focused on how college

students are using the most popular SNS, Facebook.com. This synthesis of Facebook

research emphasizes what the literature suggests regarding college students' Facebook

activities (i.e., the what), details about which students are engaging in such activities,

(i.e., the who), and college students' motivation for accessing Facebook (i.e., the why).

Central to the present study is my position that the dearth of research assessing Facebook

motivation limits counseling psychologists' understanding of Facebook engagement.

Next, I critique the Facebook research and provide a rationale for how the present study

will expand upon the current literature base, specifically through, using both maladaptive

and adaptive measures of interpersonal and intrapersonal functioning, exploring possible

associations between Facebook activities and Facebook motivations, and through a more

intentional connection with both college student development and motivation theory.

Finally, I conclude this chapter with my research questions and hypotheses.

Emerging Adult and College Student Developmental Theory

The transition from late adolescence to adulthood is a time of considerable

developmental shift and transition and is further compounded by the complexity of

college life. The changes that occur within individuals during this time period are so

significant that even theorists focused on lifespan development still emphasized the

changes that occur in late adolescence and young adulthood (e.g., Erikson, 1959;

Kohlberg, 1971). Arnett (2000) perceived this time period to be of such importance that

his developmental theory of emerging adulthood is concerned *only* with the

developmental transition occurring between the ages of 18 and 29, regardless of college

student status. Because the present study is focused on emerging adult college students it

is important to supplement the theoretical framework offered by Arnett with theory that

specifically addresses development within the college context. However, some theorists focused on development within the college environment (e.g., Astin, 1984; Perry, 1970) are limited in their domain focus (e.g., Astin, 1984, retention; Perry, 1970, intellectual development). Chickering and Reisser (1993), on the other hand, took a broader psychosocial approach to viewing college student development, emphasizing that life is intrinsically social and that development occurs as a result of social interactions and how individuals think about those interactions. They suggested that development is fluid during the college years and described seven vectors through which college students experience shifts in their ways of thinking and interacting with their environments. They argued that is actually through these shifts and accommodations that students construct their identities. My overview of Arnett's and Chickering and Reisser's theories provides a base for understanding the developmental period of my participants and also provides a developmental context for understanding college students' Facebook use.

Theory of Emerging Adulthood

Arnett suggested that individuals, roughly, 18-29 years of age are no longer adolescents but not yet adults (Arnett, 2000; 2006). In his theory of emerging adulthood he argued that individuals continue to develop, explore, and establish their identities beyond adolescence before attaining full adult status (Arnett, 2006). Industrialized societies have seen a delay in when individuals are choosing to get married and have children, common markers of the shift into adulthood. This delaying of adult roles has afforded emerging adults with the freedom and opportunity to continue exploring their identities and making their own choices without affecting the lives of others (e.g., spouse, children). Whereas some individuals choose to enter the workforce in their late teens and

early twenties, others opt to pursue higher education. Arnett (2000; 2004; 2006) argued that emerging adults approach these years as an exploratory period during which they try new possibilities and learn from experiences, regardless of their vocational paths. It is through this exploration that emerging adults form identities and inform future long-term commitments (Arnett, 2000, 2004, 2006). No longer under the constraints of parents and not yet subject to the same external constraints as adults, these emerging adults recognize that they have control over their lives (Arnett, 2000; 2004; 2006). Having this control, emerging adults explore areas of love, work, and worldviews.

According to Arnett, the substance of identity exploration resides in emerging adults' unique experiences and choices in how they explore relationships, work, and worldviews. Emerging adults have control over how they negotiate social and romantic relationships as they are motivated to establish long-term, emotionally reciprocal relationships with others (Arnett, 2000). Their vocational interests shift and emerging adults are intentional about acquiring employment that may apply to future career roles. Their worldviews shift as emerging adults are exposed to others (e.g., classmates, co-workers) whose different cultures and experiences challenge previously held worldviews (Arnett, 2000; Labouvie-Vief, 2006). Through these experiences they become better informed regarding what aspects of their identities they want to persist into their adult lives. Labouvie-Vief (2006) suggested that the more emerging adults are exposed to, the more they can potentially learn about themselves and their interests (e.g., romantic partners, careers, attitudes and worldviews). Identity development occurs as a result of emerging adults facing challenges and opportunities and learning from them. Exploring love can result in disappointment or rejection. Exploring work can result in failure to

acquire vocational satisfaction. Exploring worldviews can result in rejecting previously held beliefs without replacing them with views more stable and consistent with attitudes (Arnett, 2000). This simultaneous occurrence of challenging and facilitative experiences can generate variance in emerging adults' interpersonal and intrapersonal functioning.

Arnett's emphasis on emerging adults' exposure to new experiences for identity development is highly connected with college students' engagement with Facebook. The Internet's growth since the 1990s has contributed to rapid globalization (Arnett, 2002). In particular, emerging adults now have access to information and individuals from all over the world which is altering the ways in which they explore love, work, and worldviews. Compared to other age groups, emerging adults spend more of their leisure time alone and they also more commonly access various types of media, such as the Internet, during this leisure time (Arnett, 2006; Brown, 2006). Brown (2006) posits that emerging adults are making intentional choices about how they access the Internet, and as such, Internet use must be viewed through a developmental lens as it offers possibilities to contribute to "identity work" (p. 281). For example, emerging adults can explore romantic endeavors through online dating services, and their worldviews appear to be influenced by celebrities and other media characters (Boon & Lomore, 2001). As Facebook has become a primary venue of emerging adults' Internet activity, Facebook must also be considered in a developmental context, and Arnett provides a theoretical framework through which to consider college students' use of this popular SNS. That is, Facebook viewed through such a developmental lens can offer insight into the simultaneous experience of maladaptive and adaptive factors of interpersonal and intrapersonal functioning.

Psychosocial Theory of College Student Development

Chickering (1969) indicated that college students experience great change and flux throughout their college years because the environment requires them to incorporate new knowledge, routines, friends, and freedoms into a single identity. In fact, it is the flux of the college years that allows college students the opportunity to experiment with new knowledge, routines, friends, and freedoms by which they establish a single identity as they matriculate into the adult world. Chickering and Reisser (1993) expanded on Chickering's original work (1969) and proposed a psychosocial theory of development for college students, focused on how students' identities develop within the context of, and as a result of, college life. Consistent with Arnett (2000; 2006; 2007), Chickering and Reisser suggested that identity development occurs as a result of college students facing a variety of experiences that challenge their previous ways of thinking, feeling, behaving, valuing, and relating to the self and others. Specifically, Chickering and Reisser (1993) posited that it is through facing challenges related to seven non-linear vectors that individuals form identities. Despite being organized into seven different vectors, "[a]t one level of generalization, all the developmental vectors could be classified under 'identity formation'" (Chickering & Reisser, 1993, p. 173). These vectors are not experienced as stages, and are often revisited as addressing each vector has the potential to change the way in which college students interpret their realties.

Chickering and Reisser's (1993) vectors are: developing competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity. They posited that college students develop interpersonal and intrapersonal

competence by receiving feedback from others regarding how well their emerging skills allow them to effectively operate within their environment. They went on to suggest that college students manage emotions by finding balance between self-expression and self-control and learning to manage positive and negative affect, and they move through autonomy toward interdependence by switching relational patterns from their families of origin and learning to rely on peers, romantic partners, non-parental adults, and various reference groups for emotional support (Chickering & Reisser, 1993). Further, college students develop mature interpersonal relationships by appreciating others' perspectives and responding to others as individuals. They establish an identity by reflecting on and consolidating their interests, life roles, and lifestyle choices, and develop purpose by coming to clear decisions regarding vocational goals, personal interests, and relational commitments (Chickering & Reisser, 1993). Chickering and Reisser (1993) concluded their list of vectors by explaining that college students develop integrity by considering how their behavior can affect their fellow human beings and by refining their previously held values and shifting to values which are less self-serving.

According to these theories, development occurs through the process by which college students interact with others and their environment (Arnett, 2000; Chickering & Reisser, 1993) and Facebook must be included as a part of college students' environment. As indicated by both Arnett (2000) and Chickering and Reisser (1993), college students' identity development cannot be understood without attention being given to their environments and interpersonal and intrapersonal experiences. In today's world those experiences and environments include online engagement, of which Facebook is primary. Facebook users create and maintain an online profile consisting of hometown, interests,

political affiliation, sexual orientation, religious beliefs, pictures, videos, relationship status, favorite quotations, movies, and books, among other categories. Stated simply, college students can choose to disclose their entire lives on their Facebook profiles and interact with friends' profiles in a manner that is almost as dynamic as in real life. Further, research indicates college students are generally consistent in their online and offline self-presentations (Lampe, et al., 2006) and use Facebook for impression management (McAndrew & Jeong, 2012). Thus, college student development, including their interpersonal and intrapersonal functioning, can best be understood by including consideration of college students' Facebook engagement.

It is essential that counseling psychologists have empirical information about how college students' engagement in the virtual environment of Facebook interacts with students' development and maintenance of interpersonal and intrapersonal functioning. The present study is focused on how college students' Facebook engagement (i.e., activities and motivations) associates with students' interpersonal and intrapersonal functioning.

College student development cannot be understood without considering both interpersonal and intrapersonal aspects of college students' lives. The inclusion of both loneliness and social connectedness as measures of overall interpersonal functioning emerge out of Arnett's (2000) position that social relationships are central to identity development, and also Chickering and Reisser's (1993) position that college students acquire an overall sense of interpersonal competence by working with and receiving feedback from others. Further, a primary goal of Facebook is to establish and maintain interpersonal connections (Facebook, 2013). The emerging adulthood literature suggests

that emerging adults commonly respond to the stressors of identity development not by feeling helpless but by integrating their summative experiences into a foundation for a satisfying future in love, work, and other life domains (Arnett, 2007). Further, Chickering and Reisser (1993) argue that identity establishment is achieved through a complex process contingent on development in a number of areas that requires college students to maintain a sense of balance as they experiment with their interests, roles, and lifestyle choices and accept where they come from and who they are. Further, Facebook provides a venue that can interact with these different elements of identity exploration and thus has the potential to contribute to or inhibit college students' intrapersonal functioning. The inclusion of both identity distress and life-satisfaction as measures of overall intrapersonal functioning emerge out of theory in that it is through identity distress that emerging adults and college students make adjustments to their lives and experience life-satisfaction (Arnett, 2007; Galambos, Barker, & Krahn, 2006; Hornblower, 1997; Schulenberg & Zarrett, 2006). In the next section I provide an overview of the empirical Facebook literature and emphasize how that work can contribute to understanding college student development.

<div align="center">**College Students and Facebook**</div>

In this section, I review the empirical literature focused on college students' Facebook engagement. Each study I review used a college student sample unless otherwise noted. First, I provide a brief history of Facebook in order to establish a basic understanding of this immensely popular SNS. Next, I present a brief overview of the general structure of the website. I then provide a review of the empirical literature focused on college students' Facebook engagement. Much of the empirical Facebook

research can be classified under the main headings of what, who, and why. I review the research that describes college students' Facebook activities (i.e., the "what") and the maladaptive and adaptive factors that have been associated with these activities. Next, I review the research that describes how the activities of Facebook users (i.e., the "who"), differing in gender and personality traits, have been associated with certain maladaptive and adaptive factors.

Whereas the research focused on the "what" and "who" of Facebook use provides useful exploratory information regarding how college students access the SNS, a primary component of behavior (i.e., motivation) is absent from this review. In order for counseling psychologists to move beyond assessments of general Facebook use and gain a more comprehensive understanding of college students' Facebook engagement, an overview of the theoretically-based research examining Facebook and motivation (i.e., the "why") is required. However, the empirical literature that has been published regarding college students' motivation to access Facebook, which I broadly refer to as "the Facebook motivation literature", is not only limited in quantity, but also in its connection to theory. Therefore, I briefly offer general information regarding college students and motivation before reviewing the existing Facebook motivation literature. In doing so, I highlight the minimal connection to motivational theory and offer a motivation theoretical perspective I specifically chose due to its fit with the purpose of the present study. More specifically I chose self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci 2001) above and beyond other theories as its underlying tenants fit well within the context of Facebook as well as the previously identified developmental models informing the present study. Other attempts at connecting

Facebook engagement to motivation theory have been problematic as they primarily utilize Uses and Gratifications Theory (UGT; Katz, Blumler, & Gurevich, 1974) which is better utilized outside of psychological research to assess why one media source may be selected over another to achieve individual gratification. Furthermore, the goal to assess college students' Facebook engagement within the context of their unique developmental stage (Arnett, 2000; Chickering & Reisser, 1993) is best accomplished through the Self-Determination Theory of Motivation (Deci & Ryan, 1985). Finally, I conclude this section with a summary and critique of the Facebook literature and emphasize that most of the current Facebook research has not been rooted in either developmental or motivational theory.

Facebook History, Popularity, and Structure

Facebook is among the most popular social-networking sites (SNS) on the Internet. Originally developed by college students for college students (Wilson et al., 2012), Facebook has grown widely in popularity since its debut in 2004 (Facebook, 2013). In March 2013, Facebook had more than 1.1 billion active users and nearly 60% of them accessed the site daily (Facebook, 2013). If Facebook were a country it would be among the three most populous on Earth barely trailing China (1.3 billion) and India (1.2 billion; U.S. Census Bureau, n.d.). Students from more than 2,000 educational institutions have access to Facebook (Mazer, Murphy, & Simonds, 2007) and since its launch in 2004 Facebook has remained popular among undergraduates.

In February 2004, Harvard student Mark Zuckerberg launched "Thefacebook" from his dorm room (Wilson et al., 2012). One month later half the Harvard student body, approximately 10,000 students, had created a profile (Harvard University Fact

Book, 2003; Phillips, 2007). Almost immediately, the site that would eventually become "Facebook" became more widely available among approved higher education institution networks (e.g., Columbia University, Stanford University). Within one year, Facebook had more than 1 million college student users at more than 800 universities and colleges (Arrington, 2005; Facebook, 2013).

Even though the immense popularity of Facebook provides compelling rationale for an empirical focus on the website, researchers (e.g., Graham, Sandy, & Gosling, 2011; Wilson et al., 2012) have also recognized the unique opportunity to observe human behaviors in a clearly defined environment (i.e., confined to a www.facebook.com web address). Behaviors previously difficult to assess (e.g., how friends are made, how social networks spread, and how individuals refine and communicate their identities) are observable through Facebook (Wilson et al., 2012). Scholars in a variety of fields (e.g., psychology, law, economics, marketing, information technology) have assessed a number of elements connected to Facebook use (Wilson et al., 2012). Also, the breakdown of individuals by race and ethnicity on Facebook closely mirrors the proportions in the United States population (Chang, Rosenn, Backstrom, & Marlow, 2010) providing even more rationale to explore Facebook.

Facebook Site

Facebook provides an elaborate yet confined location to document all facets of individuals' lives. As indicated on the site, "…Facebook's mission is to give people the power to share and make the world more open and connected. People use Facebook to stay connected with friends and family, to discover what's going on in the world, and to share and express what matters to them," (Facebook, 2013). And it is important to note

that the Facebook designers change Facebook features frequently, perhaps in order to best accommodate users and help them best achieve the Facebook mission.

Facebook includes a conglomeration of a number of different activities in which users can choose to engage. Upon logging into the website, users are brought to the Facebook "News Feed" which is essentially a home page where they can view a streaming Timeline of all friends' Facebook activities updated in real time. With a single click from the News Feed, users can access their own main profile page or that of friends. The main profile page includes general information about individual users (e.g., job, education, geographical location, hometown, and relationship status) and users' photos and videos. All of these options are clickable links through which friends can observe more detailed information in each category. Also located on the main profile page is the "Timeline". The "Timeline" is a running stream of the personal status updates from that particular user and messages from friends published for others to see.

By clicking on the "About" link on the main profile page, users can observe more in depth information in each category presented on the main profile page (e.g., work, education, relationship status, contact information, religious and political views). Within the "About" page users can also view a particular friend's life history by year which includes the dates of life events (e.g., work and education, family and relationships, home and living, health and fitness, travel and experiences). Also on the "About" page is a list of favorite quotations, movies, television shows, music, books, photos, friends, and "likes." Liking is an option on Facebook that allows users to click a "like" button on any user's comments, pictures, life events, status updates, as well as a variety of profile pages for sports teams, restaurants, products, websites, movies, hobbies, businesses, and

everything else imaginable to indicate that the user holds a positive cognitive appraisal toward the posting or page. Finally, groups to which the Facebook user belongs are also listed on the "About" page. Any Facebook user can create a new group and invite members to join and establish whether it is an open, closed, or secret group (i.e., open to all Facebook users or closed to everyone but approved individuals). Group members can post on a shared page for on-going discussion and communicate with other members without posting to the users' wall. Groups can serve many different purposes including uniting members in a fun, fancy-free manner (e.g., When I was your Age Pluto was a Planet, I go Out of my Way to Step on Crunchy Leaves), uniting members under common experiences (e.g., I Went to Private School, Class of 2004), uniting members under common interests (e.g., Chicago White Sox Fans), or uniting members from an offline committee or group in an online arena (e.g., ADEC Student Initiative Committee; International Psychology: APA Division 52). All users can choose to participate in as many or as few of these described areas of the website, and they can also choose which users have access to what information on the profile by personalizing their privacy settings (Facebook, 2013). Readers less familiar with Facebook can read an extended summary of the specific elements of the Facebook website in Appendix A.

Facebook activities can be separated into communicative and non-communicative categories. The communicative category includes activities in which users communicate directly with a particular Facebook friend (i.e., one-to-one communication) or more broadly with all of their friends (i.e., one-to-many communication). Common one-to-one communication activities include liking or posting comments on friends' statuses, pictures, or videos, sending private messages, and chatting. Common one-to-many

communication activities include updating one's status, sharing links, creating and RSVP'ing to events. The non-communicative category includes activities in which users are not communicating with other Facebook friends. Some of the most common non-communicative activities include viewing friends' profiles, posting and viewing photos or videos, liking other pages (e.g., movies, companies, sports teams), and playing games. This separation between communicative and non-communicative activities is found in college students' broader Internet use.

College students use the Internet in a variety of ways to include tasks for school, leisure and other areas of life (e.g., Jones, 2002; Jones et al., 2009; Lee, Cheung, & Chen, 2005; Pardue & Morgan, 2008; Oblinger, 2003). Some of the purposes for which college students are using the Internet include to: complete course-related assignments (Head & Eisenberg, 2009; Kvarik & Caruso, 2005; Lenhart, Simon, & Graziano, 2001), complete tasks for work (Marahan-Martin & Schumacher, 2000), surf the Web (Malaney, 2004; Kvarik & Caruso, 2005), cope with stress (Gemmill & Peterson, 2006), download music or movies (Malaney, 2004), gamble (Brown, 2006), and shop (Bressers & Bergen, 2002; Cisco, 2011; Kvarik & Caruso, 2005). Recently, communicative activities have been primary among college students to include chatting, email, and instant messaging (Jones, 2002; Jones et al., 2009; Kvarik & Caruso, 2005; Malaney, 2004). College students use the Internet to communicate with friends and family (Anderson, 2001; Jones, 2002; Jones et al., 2009), meet new people and form relationships (McMillan & Morrison, 2006), and receive emotional support (Marahan-Martin & Schumacher, 2000). In fact, Cotten and Jelenewicz (2006) found that first-year students report spending twice as much time online for communicative purposes than for non-communicative purposes (i.e., 28 and 14

hours/week, respectively). With the advent of social-networking sites like Facebook, college students appear to be using the Internet for social communication in greater frequency than in years past.

The "What" of Facebook Engagement

Although I emphasize the contribution of the "why" (i.e., motivation) of Facebook engagement in the present study, it is necessary to review the literature describing "what" college students are doing on Facebook. Researchers to date have conducted more studies in the area of college students' Facebook activities than they have regarding college students' Facebook motivation. As such, a comprehensive review of the Facebook activities literature provides a strong basis and understanding for the present study in which I expand the literature base to include the role of motivation in connection with college students chosen Facebook activities.

College students report high levels of general Facebook use, primarily engaging in non-communicative activities. College students routinely access Facebook multiple times each day for reported totals anywhere between approximately 2 minutes and 3 hours each day (Junco, 2012; Park, Chung, & Lee, 2012; Pempek, Yermolayeva, & Calvert, 2009). Facebook is an evolving website that has seen a number of structural changes since its initial launch in early 2004. Despite the many structural changes to the site resulting in different potential activities, researchers across time have found generally consistent results regarding the non-communicative activities in which college students commonly engage. Perhaps the most common non-communicative Facebook activity among college students is passive social monitoring, or what is colloquially referred to as "Facebook stalking," in which users view material (e.g., main profile page, pictures,

videos) published by a particular individual with whom they share some offline connection without engaging in any communicative activities with that particular user (Govani & Pashley, 2005; Lampe et al., 2007; Lyndon et al., 2011). Researchers commonly find that college students spend more time viewing their friends' posted content than posting their own content (Junco, 2012; Lyndon et al., 2011; Pempek et al., 2009). College students generally engage in communicative activities (e.g., private messages, chat, Timeline posts) with only a small number of friends, whereas most of their Facebook activity is non-communicative in nature (e.g., reviewing the news feed, viewing photos) and directed toward the majority of their Facebook friends (Burke et al., 2010; Lampe, et al., 2007). Finally, it is important to note that because Facebook and the features available through the website are updated constantly, the "what" of Facebook can be exceedingly difficult to assess. See Table 1 for a summary of variables associated with the "what" of Facebook engagement.

Table 1. *Significant Associations with Facebook Activities Found in the Literature*

FB Activity	Positive Association	Negative Association
Time on FB	Narcissism	Competence Initiating Offline Interpersonal Relationships
	Anxiousness	Life-Satisfaction
	Loneliness	
	Social Avoidance	
	Alcohol Use	
	Marijuana Use	
	Improved Self-Esteem	
	Improved Life-Satisfaction	
	Campus\Community Involvement	
Log-ins to FB	Narcissism	Competence Initiating Offline Interpersonal Relationships
	Anxiousness	
	Loneliness	
	Social Avoidance	
	Alcohol Use	
	Marijuana Use	
	Improved Self-Esteem	
	Improved Life-Satisfaction	
# FB Friends	Problematic Internet Use	Loneliness
	Social Connectedness	Social Avoidance
	Emotional Closeness with Peers	Emotional Closeness with Peers
FB Status Updates	Loneliness	Loneliness
	Social Connectedness	Self-Esteem
Time Selecting Profile Pic	Loneliness	Self-Esteem
Passive Social Monitoring	Loneliness	Self-Esteem
		Student Engagement
Playing Games		Student Engagement
Posting Photos		Student Engagement
Smile Intensity in Profile Pic	Life-Satisfaction	
Communicative Activities	Student Engagement	Student Engagement
		Time Spent Preparing for Class
		Loneliness
Displaying Romantic Partner in Profile Pic	Relationship Satisfaction	
	Emotional Closeness	

Maladaptive factors of Facebook use. General Facebook use and specific Facebook activities have been associated with maladaptive factors of interpersonal and intrapersonal functioning. The amount of time spent on Facebook and the total number of times college students check their Facebook accounts each day have been positively associated with narcissism, anxiousness, loneliness, social avoidance, alcohol and marijuana use and negatively associated with self-esteem and student engagement (Clayton, Osborne, Miller, & Oberle, 2013; Junco, 2012; Kittinger, Correia, & Irons, 2012; Kross et al., 2013; Lemieux, Lajoi, & Trainor, 2013; Mehdizadeh, 2010). In addition, the amounts of time spent on Facebook and log-ins each day are negatively associated with college students' perceived competence in initiating interpersonal relationships in offline settings (Jenkins-Guarnieri, Wright, & Hudiburgh, 2012). Number of Facebook friends is positively associated with problematic Internet use (PIU). Frequency of updating Facebook status, time spent selecting a main profile picture, and passive social monitoring have all been negatively associated with self-esteem and positively associated with loneliness (Burke et al., 2010; Mehdizadeh, 2010). In his study of college student engagement, Junco (2012) found that the Facebook activities of playing games, posting photos, chatting, and passive social monitoring were all negatively associated with measures of student engagement (i.e., activities related to high academic performance and other desired outcomes of college). He also found Facebook chatting to be negatively associated with time spent preparing for class.

Adaptive factors of Facebook use. General Facebook use and specific Facebook activities have been associated with adaptive factors of interpersonal and intrapersonal functioning. College students with active Facebook profiles report more offline social

interactions than peers without active Facebook profiles (Tufekci, 2008). In addition, students' time spent on Facebook is positively associated with their amount of time spent in offline campus and community involvement (Heiberger & Harper, 2008; Valenzuela, Park, & Kee, 2009). Number of Facebook friends is negatively associated with loneliness and social avoidance (Kittinger et al., 2012; Lemieux et al., 2013). The intensity of college students' smiles in their main profile pictures is positively associated with perceived life-satisfaction, whereas time spent on Facebook has been both positively and negatively associated with life-satisfaction (Kross et al., 2013; Seder & Oishi, 2012; Valenzuela et al., 2009). College students who have more Facebook friends report feeling more socially connected to acquaintances (Ellison et al., 2007; Joinson, 2008; Lewis & West, 2009). Finally, Ellison et al. (2007), in their longitudinal study, found that college students with low levels of self-esteem and life-satisfaction at their first data collection point reported higher levels of self-esteem and life-satisfaction two weeks later if they reported significantly more "intense" Facebook use compared to their baseline level of use.

The specific Facebook activities associated with adaptive factors are communicative in nature, including posting comments and RSVPing to an event. Status updates are negatively associated with loneliness and positively associated with social connectedness (Deters & Mehl, 2012). College students who engage in communicative Facebook activities report more desirable levels of loneliness and student engagement than peers who report engaging in more passive social monitoring (Burke et al., 2010; Junco, 2012). The number of "likes" college students have on their Facebook profile is associated with more desirable levels of depression and social anxiety (Fernandez,

Levinson, & Rodebaugh, 2012). When college students display their romantic partners in their own main profile pictures on their Facebook profiles (i.e., versus those who do not), they and their partners report greater relationship satisfaction and emotional closeness with their partners (Papp, Danielewicz, & Cayemberg, 2012; Saslow, Muise, Impett, & Dubin, 2012).

The "Who" of Facebook Engagement

The primary elements of the "who" that have been assessed in the Facebook literature are gender and personality. Primary findings with regard to gender are that college student women, in comparison to college student men, access Facebook more frequently and for more time overall each week, post more pictures, and also report being more motivated to access Facebook to maintain existing social relationships (Junco, 2012; 2013b; McAndrew & Jeong, 2012; Park et al., 2012; Raacke & Bonds-Raacke, 2008). College student men access Facebook less frequently than women but are logged in for longer durations than women and report more often being motivated to access Facebook for dating or managing tasks (e.g., creating or RSVPing to an event). In addition, men, in comparison to women, are more likely to report high student engagement (i.e., as measured by study time and working in partnered groups to complete school assignments; Junco, 2012; McAndrew & Jeong, 2012; Park et al., 2012; Raacke & Bonds-Raacke, 2008). Since researchers commonly find that most U.S. college students (e.g., 94% - 96%) have active Facebook profiles, it is actually quite difficult to say that men and women who are on Facebook are different from men and women who are not on Facebook (Ellison et al., 2007; Hargiatti, 2008; Kittinger et al., 2012; Manago et al.,

2012). See Table 2 for a summary of variables associated with the "who" of Facebook

engagement.

Table 2. *Significant Associations with Facebook Users Found in the Literature*

Variable	Positive Association	Negative Association
Women	Time on FB	
	Log-ins to FB	
	Communicative FB Activities	
	Non-communicative FB Activities	
	Motive to Maintain Existing Social Relationships	
Men	Time on FB	Log-ins to FB
	Log-ins to FB	
	Motive to Date	
	Motive to Manage Tasks	
	Student Engagement	
Neuroticism	Time on FB	
	Log-ins to FB	
	FB Friends	
	FB Groups	
	Communicative FB Activities	
Extraversion	Time on FB	
	Log-ins to FB	
	FB Friends	
	FB Groups	
	Communicative FB Activities	
Openness	Time on FB	FB Games
	Log-ins to FB	PIU
	FB Friends	
	FB Groups	
	Communicative FB Activities	
Conscientiousness	Time on FB	Time on FB
		PIU
Agreeableness		Communicative FB Activities
		PIU
Narcissism	Time on FB	
	Motive to Self-Promote	
Self-Esteem		Time on FB
Compulsive Internet Use	Problematic Internet Use	

With regard to personality traits, there are not many consistent empirical findings. However, one consistent result is that neuroticism, extraversion, and openness are positively associated with college students' time spent on Facebook, the frequency with which they access the site, the number of friends they have, the number of groups to which they belong, and their number of posts on friends' Timelines (Amichai-Hamburger & Vinitzky, 2010; Correa Hinsley, & de Zuñiga, 2010; Jenkins-Guarnieri et al., 2012; Ross et al., 2009; Wilson, Fornasier, & White, 2010). Other findings that are inconsistent in the literature relate to conscientiousness. Whereas some researchers found that more conscientious college students spend more time on Facebook (Wilson et al., 2010), others found no such relationship (e.g., Ross et al., 2009). Muscanell and Guadango (2012) emphasized gender and personality differences with college students' Facebook use. They found that women college students with low agreeableness were more likely than women with high agreeableness, and more likely than all men in their study, to use Facebook chat (Muscanell & Guadango, 2012). Muscanell and Guadango (2012) also found that college student men with low openness were more likely than men with high openness to play games on Facebook.

Maladaptive factors and Facebook users. Certain Facebook users' personality traits and characteristics have been associated with maladaptive factors of interpersonal and intrapersonal functioning. College students with undesirable levels of narcissism and self-esteem reported spending more time on Facebook than college students with more desirable levels of these variables (Mehdizadeh, 2010). Further, narcissistic men, in contrast to men low in narcissism, were more likely to use Facebook as a tool for self-promotion (e.g., editing their profile's "About" section, choosing a new main profile

picture; Mehdizadeh, 2010). Karl and Peluchette (2010) found that students who compulsively used the Internet, as opposed to those who reported more control over their online engagement, were more likely to post problematic content (e.g., aggressive comments referencing a particular person or group, photos indicating illegal activity such as substance use or vandalism) to their Facebook profiles.

Adaptive factors and Facebook users. I thoroughly reviewed the empirical literature and was able to locate only one empirical investigation wherein the researchers connected individual differences with any constructs that could be viewed as adaptive factors of interpersonal and intrapersonal functioning in their research designs. Karl and Peluchette (2010) found that college students with high levels of conscientiousness, agreeableness, and emotional stability, as compared to those with low levels of these personality traits, were less likely to post pictures indicating substance use and illegal activity or aggressive comments directed toward a person or group.

Facebook users and digital inequalities. A review of Facebook users is not complete without mention of the digital inequalities that exist among its users. Differences exist regarding gender, race, and socioeconomic status of college students who access SNS. College student men were more likely to engage in non-communicative activities whereas their peers who are women were more likely to engage in communicative activities through Facebook and other SNS (Junco, 2013a; 2013b; Muscanell & Guadagno, 2011). Hargittai (2008) found that Latino and Latina students were less likely than their Caucasian peers to have a Facebook account. Furthermore, Asian American college students were more likely to have a Myspace account than a Facebook account and African American college students were more likely to have a

Twitter account than a Facebook account, and African American college students who did have a Facebook account were less likely than their peers from other racial groups to engage in passive social monitoring (Hargittai, 2008; Harhittai & Litt, 2011). Finally, first-generation college students were less likely to have a Facebook account and, if they did have an account, were less likely to engage in communicative activities when compared to their peers whose parents had some college or a college degree (Hargittai, 2008; Junco, 2013b). In sum, Facebook is not as accessible to some underrepresented groups as it is to the more privileged groups of college students. Therefore, Facebook research may primarily describe privileged student groups and exclude underrepresented populations.

Summary and critique. Whereas it is important to assess the general categories of activities and individual differences connected with college students' Facebook use, the results of studies focused on these issues have been inconsistent which suggests a more detailed examination of Facebook engagement may be warranted. For example, number of Facebook friends has been both positively (Ellison et al., 2007; Joinson, 2008; Lewis & West, 2009) and negatively (Lemieux et al., 2013) associated with emotional closeness with peers. It is plausible that college students are motivated to have a high number of Facebook friends for entirely different reasons and, as such, a focus on motivation is needed. Thus, it is important for researchers and scholars to move beyond measures of general use to more nuanced approaches to assessing Facebook engagement that can provide insight into the interactions between Facebook activities, motivations to access Facebook, and a balanced emphasis on both maladaptive and adaptive factors of interpersonal and intrapersonal functioning.

The "Why" of Facebook Engagement

My purpose in the present study is to contribute to the Facebook literature by offering a thorough examination of both Facebook activities and the underlying motivations that may preempt those activities and may be associated with maladaptive and adaptive factors of interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning. In this section, I first offer a brief overview of information regarding college students and motivation. I then review the existing Facebook motivation literature and highlight its limited connection to theory. I then offer Deci and Ryan's SDT (1985; 1991; 1995; 2000; Ryan & Deci, 2000), a theoretical perspective regarding motivation that I specifically chose due to its fit with the purpose of the present study as it connects with college student development. See Table 3 for a summary of variables associated with the "why" of Facebook engagement.

College students and motivation. Over the last half century, researchers and scholars have emphasized different components in their definitions of motivation by focusing on the physiological or environmental roots of the construct. Perhaps the broadest of all early definitions is that motivation simply includes both external and internal causes of behavior (Young, 1961). Some researchers have emphasized the physiological basis for motivation (e.g., random neural processes, neural consequences of environmental incentives; Gallistel, 1980; Ruch, 1962). Others have described motivation in terms of interruptions in a behavioral sequence that can be external (e.g., fear, escape from punishment) or internal (e.g., hunger, sex; Breland & Breland, 1966). However, not all early definitions followed this all-inclusive approach by accounting for both external and internal causes, and instead emphasized either external elements or internal processes

that lead to behavior. For example, some researchers and scholars emphasizing internal processes refer to motivations as bodily needs that precipitate behavior in order to sustain physiological balance or satisfaction (e.g., hunger, thirst; Butter, 1968). Others suggest that motivation is an unobservable phenomenon and can only be inferred when individuals have persisted in goal achievement in the presence of environmental obstacles (e.g., King, 1980; Valenstein, 1973). Kleinginna and Kleinginna (1981) recognized the range of ways to view motivation and offered an inclusive definition that "motivation refers to those energizing/arousing mechanisms with relatively direct access to the final common motor pathways, which have the potential to facilitate and direct some motor circuits while inhibiting others" (p. 272). More simply, the Oxford English Dictionary defines motivation as "the reason or reasons one has for acting or behaving in a particular way" or "the general desire or willingness of someone to do something" (Motivation, n.d.).

Two categories of motivation often discussed in the literature are extrinsic (i.e., external) and intrinsic (i.e., internal) motivations. Humans can be motivated both by strong external coercion and also consistency with internal values (Johnson, 1993; Ryan & Deci, 2000). Extrinsic motivation is the motivation to act based on the external outcomes that will follow from those actions, such as tangible rewards, recognition, and positive feedback (Amabile, Hill, Hennessey, Tighe, 1994; Deci, 1971). Intrinsic motivation is the motivation to act primarily for its own sake, because the action itself is interesting, engaging, or in some way satisfying to the individual (Amabile et al., 1994; Deci, 1971; Izard, 1977; Pretty & Seligman, 1984; Reeve, Cole, & Olson, 1986).

Research has demonstrated that college students who endorse more extrinsic motivations experience more maladaptive factors of interpersonal and intrapersonal functioning than their peers who endorse more intrinsic motivations. Extrinsic motivations are negatively associated with college students' overall well-being, frequent and regular exercise, grades, adaptation to changes in teaching styles and computer systems, and positively associated with employing avoidant coping strategies (Chirkov, Ryan, Kim, & Kaplan, 2003; Kilpatrick, Hebert, & Bartholomew, 2005; Lin, McKeachie, & Kim, 2000; Sheldon & Kasser, 1998; Sheldon, 2002; Smith, Handley, & Eldredge, 1998; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012; Teo, Lim, & Lai, 1999; Yamauchi & Tanaka, 1998).

Conversely, intrinsic motivations are positively associated with college students' life-satisfaction, vitality, self-esteem, creativity, athletic and academic performance, persistence, overall well-being, and frequent and regular exercise (Deci & Ryan, 1991; 1995; Kilpatrick et al., 2005; Nix, Ryan, Manly, & Deci, 1999; Ryan, Deci, & Grolnick, 1995; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997). In a meta-analysis of over 100 studies, Robbins, Lauver, Le, Davis, and Langley (2004) found that an intrinsic achievement motivation explained the most variance in college student GPA. Thus, the literature suggests that college students who are more intrinsically motivated to act in contrast to those who are more extrinsically motivated are more likely to report adaptive interpersonal and intrapersonal functioning.

Table 3. *Associations between Facebook Motivations and Dependent Variables Found in the Literature*

Motivation	Positive Association	Negative Association
Maintain Social Relationships	Communicative FB Activities	Engaged Privacy Settings
	#FB Friends Passively Social Monitored	Loneliness
	Non-communicative FB Activities	
Expand Online Relationships	Non-communicative FB Activities	
Self-Expression	Status Updates	
	Communicative FB Activities	
Self-Presentation	Communicative FB Activities	
Social Interaction	Communicative FB Activities	
Habitual Pass Time	Communicative FB Activities	
Professional Advancement	Communicative FB Activities	
Expand Social Capital	Self-Esteem	
	Life-satisfaction	

Note. FB = Facebook.

Motivations for accessing Facebook. A variety of motivations for accessing Facebook have been examined in the Facebook literature. Without an understanding of why college students use Facebook activities, counseling psychologists will be limited in their understanding of the online environment and in conceptualizing college students' Facebook engagement. Facebook may allow college students' motivations to be expressed in new ways. For example, whereas a motivation to conform may have previously been expressed by joining a sorority, fraternity, attending a particular specific university-related event (e.g., athletic, musical, or otherwise extracurricular activity) through Facebook, that same motivation may be expressed through simply joining Facebook or being more involved within the site by participating in group interaction or "liking" certain trendy interests (e.g., music, movies, books). However, researchers have not yet examined Facebook motivations by distinguishing between extrinsic and intrinsic motivations, and instead have only explored intuitively-based motivations (e.g., to maintain social relationships) or by applying broader Internet motivation measures to the confines of the SNS. The primary motivation for accessing Facebook identified by college students is to maintain and expand social relationships that exist in their offline worlds (e.g., Ellison, Steinfield, & Lampe, 2007; Heinonen, 2011; Joinson, 2008; Lampe et al., 2007). College students commonly use Facebook to interact with friends with whom they share an offline connection (e.g., friend from high school, current classmate, recent acquaintance) and rarely use Facebook to establish new acquaintances with individuals unknown to them (Ellison et al., 2007; Heinonen, 2011; Joinson, 2008; Lampe et al., 2006; Smock, Ellison, Lampe, & Wohn, 2011; Tosun, 2012).

The motivation to maintain existing relationships is positively associated with communicative Facebook activities (e.g., private messaging, chatting, posting on Timelines) whereas the motivation to expand solely online relationships with new acquaintances is positively associated with non-communicative activities (e.g., passive social monitoring; Burke et al., 2010; Ellison et al., 2007; Lampe et al., 2007; Pempek et al., 2009). Further, college students' Facebook motivation to maintain social relationships is positively associated with the number of friends they passively social monitor (Burke et al., 2010). College students' motivation to maintain social relationships across distances (i.e., outside of one's primary network) is positively associated with the communicative activities of sending private messages and Timeline postings. Students' motivation to maintain more proximal relationships (i.e., within one's primary network) is positively associated with frequency with which they "poke" friends (see Appendix A, p. 171) and negatively associated with engaged privacy settings (Burke et al., 2010; Golder, Wilkinson, Huberman, 2007; Acquisti & Gross, 2006). Moreover, Viswanath, Mislove, Cha, and Gummadi (2009) found that when two users infrequently interacted with each other through Facebook, Timeline posts were positively associated with external reminders or cues from the News Feed (e.g., birthday reminder from the website, Timeline post from a mutual friend). Although this finding does not offer much regarding users' internal motivations, it is the only example in the literature that describes how outside forces can influence Facebook engagement.

Other motivations to access Facebook, beyond the motivation to maintain social relationships, are less researched but nonetheless the available empirical information is useful to review. Some of these less researched Facebook motivations are for self-

expression, self-presentation, social interaction, habitual pass time, and professional advancement (Pempek et al., 2009; Smock et al., 2011; Waters & Ackerman, 2011; Zywica & Danowski, 2008). More specifically, self-expression (e.g., to provide personal information) is positively associated with the communicative activities of social and group interaction by posting both to one's own Timeline and to groups (Smock et al., 2011). Self-presentation (e.g., to present information that may be of use or interest to others) is positively associated with mass personal communication (O'Sullivan, 2005), in which college students use a public forum (e.g., Timeline or group post, photo comment) to convey an interpersonal message (e.g., "happy birthday" or "congratulations"; Smock et al., 2011). Social interaction (e.g., to communicate with distanced friends) is positively associated with frequent interaction with friends and family members through Facebook by using communicative activities such as comments, private messages, and Timeline posts (Ellison et al., 2007; Joinson, 2008; Ross et al., 2009; Smock et al., 2011). Habitually passing time and relieving boredom (e.g., when I have nothing better to do) are positively associated with Timeline posts (Lampe, Ellison, & Steinfield, 2008; Pempek et al., 2009; Smock et al., 2011). Finally, the motivation to professionally advance oneself is positively associated with the communicative activities private messages and Timeline posts. Other motivations found in the Facebook motivation literature have not been significantly associated with activities but have been identified as possible reasons college students access Facebook. Some of these motivations include to entertain oneself, share information with others, seek information, and document information to be viewed at a later date (Smock et al., 2011; Waters & Ackerman, 2011; Zywica & Danowski, 2008).

The Facebook research connecting motivations to activities is inconsistent. For example, different motivations to use Facebook (e.g., intrinsic motivations of self-expression and social interaction, extrinsic motivations of habitual pass time and boredom relief) have been positively associated with the same Facebook activity (e.g., Timeline posts; Lampe et al., 2008; Pempek et al., 2009; Smock et al., 2011). Further, the motivation to maintain social relationships has been positively associated with both communicative (i.e., private messaging, posting of Friends' Timelines) and non-communicative (i.e., viewing the News Feed and passive social monitoring).

Adaptive factors and Facebook motivation. Although I found no studies that indicate associations between college students' motivations to access Facebook and maladaptive factors of interpersonal and intrapersonal functioning, I did find a few studies that indicated associations between Facebook motivations and adaptive factors of interpersonal and intrapersonal functioning. Researchers have found that the motivation to use Facebook to maintain existing social relationships is negatively associated with loneliness (Burke et al., 2010; Kramer, 2010). Ellison et al. (2007) and Steinfield, Ellison, and Lampe (2008) found that the motivation to expand social capital (i.e., the benefits received from having relationships with other people; Lin, 1999; Putnam, 2000) was positively associated with self-esteem and life-satisfaction. In sum, the research that has examined college students' motivation to use Facebook has minimally addressed potential associations between motivations and maladaptive and adaptive factors of interpersonal and intrapersonal functioning.

The Facebook motivation literature is limited in its connection to motivation theory. In fact, the only Facebook motivation literature that took a theoretical approach to

examining Facebook motivations was informed by the Uses and Gratifications Theory (UGT; Katz, Blumler, & Gurevich, 1974). According to this theory, media sources are selected by individual users to meet individual goals. At the source of the UGT are the exploratory questions of why people use media sources and for what purposes (Katz et al., 1974). General findings from the Facebook motivation literature taking a UGT approach are that college students use Facebook to avoid responsibilities and pressures, communicate their friendship toward others, appear fashionable to others, share problems, overcome social inhibitions, learn information about peer groups, and for socialization, entertainment, and information seeking (Joinson, 2008; Park et al., 2009).

Using UGT to inform Facebook research is problematic for psychologists. A limitation to using this theory with Facebook research is that UGT specifically emphasizes the gratifying aspect of specific media use. Thus, it is more concerned with why individuals would choose one media source (e.g., Facebook) over other sources in pursuit of gratification, and it does account for the possibility that other goals (i.e., beyond user gratification) may be associated with individuals' interactions with a particular media source. Perhaps the most problematic issue in viewing Facebook motivations through a UGT lens is that the theory has minimal utility in psychological research. Specifically, UGT comes from the sociology literature and focuses solely on an individual's experience with a media source without accounting for the individual's developmental context (Severin & Tankard, 1997). Thus, UGT is not centered on explaining how various media sources fit into individuals' environments or into their developmental contexts, but rather it is narrowly focused on individuals' experiences with that media source. Deci and Ryan (1985; 1991; 1995; 2000; Ryan & Deci, 2000)

offer a motivation theory that addresses the shortcomings of UGT with regard to studying Facebook.

      Self-Determination Theory of motivation. Deci and Ryan's (1985; 1991; 1995; 2000; Ryan & Deci, 2000) Self-Determination Theory (SDT) considers individuals to be active agents who are motivated to grow and develop in effort to attain three innate psychological needs: competence, autonomy, and relatedness (Deci & Ryan, 1985). Competence is the need to experience mastery within one's roles. Autonomy is the need to act in ways that are consistent with one's integrated self and to be the primary causal agent within one's life. Relatedness is the need to care for, interact with, and be connected to others. Because all individuals have these innate psychological needs, they are all motivated to initiate behaviors that will directly contribute to the attainment of them. Further, motivations which contribute to individuals' experience of autonomy, competence, and relatedness are suggested to lead to conditions that promote greater functioning and well-being, thus, maintaining these needs (Deci & Ryan, 2000). When these three needs are satisfied, individuals are primed for optimal functioning and growth. Alternatively, when any of these three needs are unfulfilled individuals will experience depleted wellness. Because well-being has been described as having both interpersonal and intrapersonal components (e.g., Ryan & Deci, 2000), it can be assessed by using measures of interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning.

      Intrinsic and extrinsic motivations are posited to contribute differently to the experience of well-being and overall functioning. More specifically, intrinsic motivations, which come from within the self, lead to seeking out challenges and new

possibilities that are associated with interpersonal and intrapersonal development.

Extrinsic motivations, on the other hand, are the least autonomous motivations, as they

come from external demand or possible reward. These extrinsic motivations work

directly against the need for autonomy as external influences are influencing behavior.

The further away from competence, autonomy, and relatedness individuals become, the

less self-determined their choices are, and the less interpersonal and intrapersonal

satisfaction is experienced.

It is important to note that Deci and Ryan's self-determination theory (2000;

Niemiec & Ryan, 2000; Ryan & Deci, 2000) posit that motivations exist on a continuum

rather than simply a dichotomy between intrinsic and extrinsic sources. In fact, the

continuum exists from amotivation (i.e., lacking in intentionality) through extrinsic

motivations (i.e., passive compliance), to intrinsic motivations (i.e., characterized by

active personal commitment; see Figure 1). Progressing through the continuum relates to

increasing levels of internalization and autonomy and decreasing levels of personal

control; however, this progression is not necessarily linear and is subject to social and

contextual factors. Nonetheless, greater internalization is critical for effective

psychological functioning and well-being (Niemiec & Ryan, 2000; Ryan & Deci, 2000).

This subtlety and complexity within the self-determination theory introduces the notion

that the external observation of individuals' motivations and behaviors may be difficult to

interpret regarding a source for that motivation without an understanding of individuals'

values and goals. It is important to note that moving from left to right in Figure 1 can

occur for a number of reasons including increased value placed on an activity (i.e., Ryan,

1995), increased competence in an activity (i.e., Deci, 1975), or a strengthened belief that a desired outcome will result (i.e., Seligman, 1975).

Non Self-Determined ←————————————————————————→ Self-Determined

	AMOTIVATION	EXTRINSIC MOTIVATION				INTRINSIC MOTIVATION
Regulatory Styles	Non-Regulation	External Regulation	Introjection	Identification	Integration	Intrinsic Regulation
Perceived Locus of Causality	Impersonal	External	Somewhat External	Somewhat Internal	Internal	Internal
Associated Processes	No Intention Incompetence Nonintentionality	Compliance External Rewards or Punishments	Ego-involvement Approval from Others	Conscious Valuing of an Activity Self-endorsement of Goals	Congruence Hierarchical Synthesis of Goals and Self	Interest Enjoyment Inherent Satisfaction

Figure 1. The Self-Determination continuum; adapted from Ryan and Deci (2000).

Further, SDT accounts for how social and environmental factors not only contribute to or impair individuals' motivations but also indirectly affect their well-being and functioning. Interpersonal and intrapersonal contextual conditions can enhance intrinsic motivation if those conditions support individuals' feelings of competence, autonomy, and relatedness. In this way, the environments themselves can facilitate intrinsic motivation which then contribute to or undermine interpersonal and intrapersonal functioning (Ryan & Deci, 2000). In terms of the present study, Facebook is part of the social and environmental context for college students, and the ways in which college students engage in Facebook contributes to that context. Whether a student engages in Facebook for intrinsic or extrinsic reasons should be associated with their interpersonal and intrapersonal functioning.

In sum, individuals are inherently motivated to achieve three psychological needs (i.e., competence, autonomy, and relatedness) that contribute to interpersonal and intrapersonal satisfaction. When those needs are met individuals are motivated to seek conditions that maintain them. Intrinsic motivations are consistent with achieving those needs, whereas extrinsic motivations are inconsistent with achieving those needs.

SDT compliments the theories of emerging adulthood and college student development considered in the present study. Whereas SDT emphasizes the three innate psychological needs of competence, autonomy, and relatedness, Arnett (2000) and Chickering and Reisser (1993), in their development theories, describe how college students achieve these same needs through experiencing challenges while exploring potential identities and learning from those challenges. In living, exploring, and struggling with potential identities, college students come to develop competence, move

through autonomy toward interdependence, and establish identity through interactions with their social connections and environmental contexts (Chickering and Reisser, 1993). Further, SDT would suggest that the more intrinsically motivated college students are, the more likely they are to experience adaptive factors of interpersonal and intrapersonal functioning through identity exploration, as intrinsic motivations are consistent with seeking challenges and new possibilities (i.e., a medium through which college student development and emerging adulthood occur).

SDT provides a theoretical base from which to examine why particular Facebook activities might be associated with both maladaptive and adaptive factors of interpersonal and intrapersonal functioning. SDT differentiates between the utility of intrinsic versus extrinsic motivations. More importantly, SDT would suggest that the chosen Facebook activity is relatively unimportant when considering individuals' associated experiences of interpersonal and intrapersonal functioning. Rather, SDT posits that the underlying motivation precipitating that activity should be more strongly associated with interpersonal and intrapersonal functioning than the type of activity itself. That is, the more intrinsic college students' Facebook motivations are, the more self-determined those motivations are, and the more likely college students are to experience adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning. Similarly, the more extrinsic college students' Facebook motivations are, the less self-determined those motivations are, and the more likely college students are to experience maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning. For example, accessing Facebook with the underlying intrinsic motivation to enhance one's own positive experience may

be positively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning and negatively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning. Similarly, accessing Facebook with the underlying extrinsic motivations to conform to social norms may be negatively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (life-satisfaction) functioning and positively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning.

Further, SDT would suggest that the underlying intrinsic or extrinsic motivations are more important than the specific Facebook activities in understanding associations with interpersonal and intrapersonal functioning. However, because Facebook motivations have not yet been categorized based on the intrinsic versus extrinsic distinction, it is unknown if particular Facebook activities are positively or negatively associated with these two types of motivation. It is also important to note that motivations exist on a continuum rather than a dichotomy between intrinsic and extrinsic; however, I operationalize motivations as either intrinsic or extrinsic for empirical purposes.

Summary and Critique of the Facebook Literature

Since its inception, scholars have sought to identify the what, who, and, to a lesser extent, the why of Facebook engagement. Their research has suggested that there are few college students who are non-Facebook users and that college students engage in both communicative and non-communicative activities many times and for many hours each day. Some Facebook research assessing Facebook activities and individual factors (e.g., gender, conscientiousness) are mixed, as they have been associated with certain

maladaptive (e.g., loneliness) and adaptive factors (e.g., social connectedness, life-satisfaction) of interpersonal and intrapersonal functioning, which has led some researchers to take a more comprehensive view of college student Facebook engagement by including measures of underlying motivations for that engagement. This more comprehensive view of Facebook engagement has the potential to provide counseling psychologists with a clearer picture of students' engagement and, therefore, a better understanding of the intricate ways in which Facebook interacts with students' overall functioning. However, even researchers who have assessed Facebook motivations have chosen to emphasize how those motivations are associated with certain Facebook activities, and do not go further to simultaneously and directly examine how these activities and motivations are associated with both maladaptive and adaptive factors of students' interpersonal and intrapersonal functioning.

The empirical literature focused on Facebook is limited in a number of areas including sampling, measurement, and research design. Research on Facebook has predominantly included homogenous samples, primarily samples of European-American college students who attend moderate to large institutions. This homogeneity limits the generalizability of results. In addition, users outside educational institutions could not create a profile until 2008, so any research conducted before that time (e.g., Ellison, Heino, & Gibbs, 2006; Lampe et al., 2006; Joinson, 2008; Steinfield et al., 2008) is limited to samples of students who could only communicate with other students (Facebook, 2013). Also, Facebook researchers routinely assess the number of times college students log in to Facebook over a given period of time (e.g., per day, per week) and the amount of time spent on Facebook over those same periods of time. Although

these aspects of general use can be somewhat informative, few researchers have measured Facebook engagement in ways that can account for the intricate ways in which college students engage Facebook. With regard to research design, much of the Facebook research has been descriptive in nature or limited by a focus on only activities or only motivations and no studies have examined multiple types of both activities and motivations and how these two components of Facebook engagement could be simultaneously associated with maladaptive and adaptive factors of interpersonal and intrapersonal functioning. Also, most of the existing Facebook research has incorporated only maladaptive factors of interpersonal and intrapersonal functioning as dependent variables. Without a balanced design, counseling psychologists working with college students will continue to be limited in their understandings of how Facebook activities and motivations could be connected with both maladaptive and adaptive factors of interpersonal and intrapersonal functioning.

In the present study, I sought to address existing limitations regarding sampling, measurement, research design, and connections to theory. Whereas researchers have previously sought to measure general Facebook use or collect data regarding common activities or motivations for engaging in those activities, these measurement approaches have not been grounded in developmental and motivational theories and do not assess Facebook engagement beyond unidimensional variables (e.g., hours online each day). Developmental theorists who emphasize the transition during the college years (e.g., Arnett, 2000; Chickering & Reisser, 1993) suggest that college students' lives are in constant flux due to their current developmental stage and environmental context. This flux is marked by identity exploration and the simultaneous experiences of both

maladaptive and adaptive factors of interpersonal and intrapersonal functioning. Thus, in the present study I assessed this balance by using measures of maladaptive and adaptive interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning. Because different activities have been associated with both maladaptive and adaptive factors of interpersonal and intrapersonal functioning and SDT posits that examining motivations may help explain this discrepancy, it is important to explore how Facebook engagement exists in its complexity for college students. The present study not only addressed how particular activities and motivations may be associated with maladaptive and adaptive factors of interpersonal and intrapersonal functioning, but also assessed how particular motivations and particular activities might combine and in combination be connected with students' interpersonal and intrapersonal functioning.

Further, whereas Facebook has not been observed from a developmental theoretical perspective, the Facebook motivation research is limited in its connection to motivational theories. More specifically, Facebook motivation research only references the UGT (Katz et al., 1974). Some aspects of this theory may be consistent with the developmental perspectives offered by Arnett (2000; 2002; 2006) and Chickering and Reisser (1993), and may also provide some insight into why college students access Facebook, but it is also limited and unidimensional in its perspective. UGT specifically emphasizes the gratifying aspect of media use, and is more concerned with why individuals would choose one media source (e.g., Facebook) over other sources in pursuit of gratification rather than accounting for the potential variety of underlying motivations individuals may have to interact with a particular media source. Also, UGT's application

in psychological research has been criticized for not accounting for individuals' places in a developmental context. My use of SDT adds to the literature by assessing for multiple motivations that may underlie Facebook activities and through the theory's connection with college student developmental theory.

Research Questions and Hypotheses

College students cannot be studied without considering the environment in which they live. Because context is so important to college students' identity development (Arnett, 2000; Chickering & Reisser, 1993), an understanding of how college students access Facebook is essential for counseling psychologists working with college students. In recent years, Facebook has become a central aspect of the college student environment and this new shift in how college students interact with the Internet has led researchers to explore how various Facebook activities associate with maladaptive and adaptive factors of interpersonal and intrapersonal functioning. However, the literature is inconsistent on which activities are connected with maladaptive and adaptive factors of interpersonal and intrapersonal functioning. A growing body of literature taking a more nuanced approach to understanding Facebook engagement has begun to examine underlying motivations behind Facebook use in order to address the inconsistencies found within the Facebook literature. In fact, from a motivation theory perspective, examining the possible associations between engagement in Facebook activities and interpersonal and intrapersonal functioning without inclusion of the underlying motivations connected with engagement is inadequate. Thus, in order to contribute to counseling psychologists' knowledge of and work with college students it is important to assess how motivations to

access Facebook combine with particular activities to associate with maladaptive and adaptive factors of interpersonal and intrapersonal functioning.

Research Question #1

Are certain types of Facebook activities (i.e., communicative versus non-communicative) associated with maladaptive and adaptive factors of interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning?

Hypothesis 1a. Communicative Facebook activities (e.g., group interaction, social interaction) will be positively associated with adaptive interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning.

Hypothesis 1b. Communicative Facebook activities (e.g., group interaction, social interaction) will be negatively associated with maladaptive interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning.

Research Question #2

Are certain motivations (i.e., intrinsic versus extrinsic) for accessing Facebook associated with maladaptive and adaptive factors of interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning?

Hypothesis 2a. Intrinsic motivations for accessing Facebook (e.g., enhance, cope) will be positively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning and negatively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning.

Hypothesis 2b. Extrinsic motivations for accessing Facebook (e.g., socialize, conform) will be positively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning and negatively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning.

Research Question #3

Are certain types of Facebook activities associated with certain motivations to engage with Facebook?

I had no hypotheses for this research question because this question is exploratory in nature. Previous research has indicated that intrinsic motivations (e.g., self-expression, social interaction) are associated with communicative activities (e.g., Timeline posts, group posts), but some extrinsic motivations (e.g., habitual pass time, boredom relief) have also been associated with communicative activities (e.g., Timeline posts). Also, no other study has specifically sought to explore associations between multiple types of both Facebook activities and multiple aspects of Facebook motivations. In sum, prior research regarding the possible relationships among activities and motivations is too limited to inform hypothesis development.

Research Question #4

Are significant correlates (i.e., as determined through canonical correlation) of Facebook activities and Facebook motivations associated with maladaptive and adaptive factors of interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning?

CHAPTER III. METHOD

In this chapter I describe the participants, measures, and procedures for the present study. First, I describe the participants for the present study including their demographic makeup and my sample size. Second, I describe the measures I used to collect the data including a demographic questionnaire, measures of college student's interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction), a measure of Facebook activity, and a measure of Facebook motivation.

Participants

The final sample for the present study consisted of 208 U.S.-born undergraduate college students aged 18-25 years old enrolled full-time at a large Midwestern university who had an active Facebook profile at the time of data collection. Individuals who completed the present study but were international students, graduate students, professional students, or did not have an active Facebook profile (i.e., deactivated at the time of data collection or never registered a Facebook account) were not included in the final sample.

The final sample had a mean age of 20.5 ($SD = 1.31$), a median age of 20.8 years, and a modal age of 21 years. The sample consisted of 130 women (62.5%), 77 men (37%), and 1 transgender individual (.5%). Regarding race and ethnicity, 175 participants identified themselves as European American (84.1%), 10 as Latino/a American (4.8%), 7

as Asian American (3.4%), 4 as African American (1.9%) 1 as Middle Eastern American (.5%), 9 as Biracial/Multiracial (4.3%; e.g., Filipina\White, Caucasian\Korean), and 2 as "other" (1%; i.e., "American"). The sample's demographic makeup was slightly disparate from the overall university population. More specifically, I anticipated 57% of participants to be male, 74% to be European American/White, 5% to be African American/Black, and .2% to be Asian American (Purdue University, 2013).

Additionally, participants were asked to identify their year in school and 17 (8.2%) identified as first-year undergraduates, 71 (34.1%) identified as sophomores, 63 (30.3%) identified as juniors, and 57 (27.4%) identified as seniors. The sample was slightly overrepresented by upper classmen (i.e., junior and senior students).

In regard to sexual orientation, 190 participants identified themselves as heterosexual/straight (91.3%), 5 as gay\lesbian (2.4%), 8 as bisexual (3.8%), and 4 as "other" (1%; e.g., pansexual, "not sure at the moment", "80% straight"). Participants were also asked to report information about their current relationship status and of the 208 participants 111 were not in a romantic relationship (53.4%), 76 were in a non-cohabitating romantic relationship (36.5%), 15 were cohabitating with their romantic partner (7.2%), 2 were married (1%), and 4 identified their romantic relationship status as "other" (1.9%). Participants reported their employment status and 71 (34.1%) were unemployed, 109 (52.4%) were employed part-time, 10 (4.8%) were employed full-time, 16 (7.7%) reported not being in the labor force, and 2 (1%) did not report. Finally, participants reported the number of miles between their residence while attending high school and their current university. In regard to the number of miles participants were

from their residence during high school while in college, they reported being a mean of

220.1 (*SD* = 406.2), a median of 100, and a mode of 65 miles away.

Table 4. *Comparison of Sample and Institution Demographics*

Demographic Variable	Sample	Institution Population
Gender		
Men	37.0%	57.0%
Women	62.5%	43.0%
Race/Ethnicity		
European American	84.1%	74.0%
African American	1.9%	5.0%
Asian American	3.4%	4.0%
Latino/a American	4.8%	3.0%
Middle Eastern American	.5%	Not specified
Biracial	4.3%	Not specified
Other	1.0%	Not specified
Class Level		
First-year student	8.2%	16.2%
Sophomore	34.1%	18.2%
Junior	30.3%	17.1%
Senior	27.4%	26.1%
Graduate	Excluded	20.0%
Professional	Excluded	2.4%

The participants were asked background questions regarding their general Internet

and Facebook use. Participants reported the number of hours spent online each day with a

mean of 6.3 (*SD* = 2.4), a median of 6, and a mode of 6 hours. Participants reported the

number of hours spent on Facebook each day with a mean of 2.3 (*SD* = 1.4), a median of

2, and a mode of 1 hours. Participants reported the number of Facebook friends with a

mean of 563.4 (*SD* = 369.9), a median of 500, and a mode of 500 Facebook friends.

Measures

In this section, I describe the measures I used to conduct the present study. The description of each measure includes the total number of items, the measure's original purpose, a description of relevant subscales, example items, the method for rating items, relevant changes to any measure, and what higher scores indicate. Further, I discuss the psychometric properties of past scores (i.e., internal consistency and validity) of each measure. Table 5 includes all measures and subscales, total items, prior internal consistencies, and internal consistencies from the present sample. With regard to order, I first describe my demographic questionnaire followed by the measures that I used to assess interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning, Facebook activities, and Facebook motivation.

Table 5. *Summary of Assessed Variables*

Variable	Source	Items	Cronbach's alpha	
			Past Research	Present Study
Interpersonal Functioning				
Loneliness	DiTommaso et al., 2004	15	.87	.84
Social Connectedness	Lee & Robbins, 1995	8	.91	.94
Intrapersonal Functioning				
Identity Distress	Berman et al., 2004	10	.84	.83
Life-satisfaction	Diener et al., 1985	5	.87	.87
Conscientiousness		9		.78
Facebook Engagement				
Facebook Activities	McAndrew & Jeong, 2012			
Social Comparison		5	.88	.89
Photo Activity		5	.83	.80
Passive Social Monitoring		4	.71	.65
Photo Impression Mgmt		5	.59	.62
Linking		2	.76	.65
Posting Selfies		3	.62	.62
Family Activity[a]		2	.45	.39[a]
Group Interaction		4	.71	.77
Social Interaction		3	.61	.74
Facebook Motivation	Cooper, 1994			
Cope		5	.83	.80
Enhance		5	.81	.81
Socialize		5	.86	.83
Conform		5	.68	.74
Escapism	Smock et al., 2011	3	.67	.70

Note. All measures are Likert-type; [a] = This subscale was not retained for analysis in the present study due to inadequate internal consistency of its scores.

Demographic questionnaire. Participants' demographic and background information was obtained through a form I created for the present study (Appendix B). Specifically, age, gender, race/ethnicity, sexual orientation, year in undergraduate study, student status (i.e., full vs. part-time), approximate distance from home (i.e., in miles), and relationship status were assessed. The form also included questions regarding participants' general Internet use (i.e., average hours online per day). I also collected data regarding current Facebook account status (e.g., active, deactivated, disabled, never registered, plan to register) and average hours on Facebook each day.

Loneliness. I used the short form of the Social and Emotional Loneliness Scale (SELSA-S; DiTommaso, Brannen, & Best, 2004; Appendix C) to assess participants' maladaptive interpersonal functioning. The SELSA-S is a 15-item measure designed to assess respondents' experience of emotional and social isolation resulting from perceived deficits in social (i.e., friends, co-workers), romantic, and familial relationships. The measure contains three subscales each consisting of 5 items. The social loneliness subscale assesses experiences of emotional and social isolation relative to social relationships and an example item is "I don't have any friends who share my views, but I wish I did". The romantic loneliness subscale assesses experiences of emotional and social isolation relative to romantic relationships and an example item is "I wish I had a more satisfying romantic relationship". The family loneliness subscale assesses experiences of emotional and social isolation relative to familial relationships and an example item is "I feel alone when I am with my family". Participants rate their level of agreement with each item on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), thus creating a potential range from 15 to 105. Nine items are negatively

worded and were reverse coded so that when taking a total score higher scores indicated

greater loneliness. I used the total rather than subscale scores in the present study.

According to Cohen's (1988) standards, scores on the measure displayed strong internal

consistency ($\alpha = .84$) with the current sample.

      Social connectedness. I used the Social Connectedness Scale (SCS; Lee &

Robbins, 1995; Appendix D) to assess participants' adaptive interpersonal functioning.

The SCS is an 8-item measure used to assess respondents' subjective perception of

interpersonal closeness between themselves and their friends and society as a whole. The

scale contains no subscales. Sample items include, "Even among my friends there is no

sense of brother/sisterhood," and "I feel so distant from people." Participants rate their

level of agreement with each item using a 6-point scale ranging from 1 (*strongly agree*)

to 6 (*strongly disagree*), thus creating a potential range of 8-48 with higher scores

indicating greater social connectedness. According to Cohen's (1988) standards, scores

on the measure displayed excellent internal consistency ($\alpha = .94$) with the current sample.

      Identity distress. I used the Identity Distress Survey (IDS; Berman,

Montgomery, & Kurtines, 2004; Appendix E) to assess participants' maladaptive

intrapersonal functioning. The survey was designed to identify respondents who met full

criteria for Identity Disorder as defined in the DSM-III-R (APA, 1987). The IDS assesses

the extent to which respondents have recently been distressed about specific concerns

relevant to the identity development process (e.g., values or beliefs, sexual orientation

and behavior, group loyalties). The survey contains no subscales. One item was altered to

reflect more recent understandings of sexual orientation. Specifically, the phrase "sexual

preference" was changed to "sexual attraction." Participants rate the first 9 items (i.e.,

specific concerns and overall distress) on a 5-point scale ranging from 1 (*not at all*) to 5 (*very severely*) and item 10 (i.e., duration) on a scale ranging from 1 (*never or less than a month*) to 5 (*more than 12 months*), thus creating a potential range of 10-50 with higher scores indicating more identity distress. According to Cohen's (1988) standards, scores on the measure displayed strong internal consistency ($\alpha = .83$) with the current sample.

Life-satisfaction. I used the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985; Appendix F) to assess participants' adaptive intrapersonal functioning. The SWLS is a 5-item measure that was designed to assess participants' subjective happiness or personal contentment. The scale contains no subscales. Sample items include, "In most ways my life is ideal," and "the conditions of my life are excellent." Participants rate their level of agreement with each item on a 6-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), thus creating a potential range of 5-35 with higher scores indicating greater satisfaction with life. According to Cohen's (1988) standards, scores on the measure displayed strong internal consistency ($\alpha = .87$) with the current sample.

Conscientiousness. Based on feedback from my dissertation committee, I used the conscientiousness subscale from the Big Five Inventory (BFI; John & Srivastava, 1999; Appendix G) to collect information regarding participants' perceived level of conscientiousness. The conscientiousness subscale is comprised of 9 items (e.g., "I see myself as someone who does a thorough job, does things efficiently, and is a reliable worker). Participants rate their level of agreement with each item on a 5-point scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*), thus creating a potential range from 9-45. Four items are negatively worded and were reverse-coded so that higher

scores were indicative of self-discipline and a preference for planned versus impulsive behavior. According to Cohen's (1988) standards, scores on the measure displayed good internal consistency ($\alpha = .78$) with the current sample.

Facebook activities. I used the Facebook activity measure (FAM; McAndrew & Jeong, 2012; Appendix H) to collect information regarding the extent to which participants engage in a variety of Facebook activities. McAndrew and Jeong (2012) adapted the FAM from a measure developed by Pempek et al. (2009) and designed it to assess the frequency with which respondents engage in Facebook activities. The FAM includes 9 subscales and a total of 34 items. The subscale social comparison (5 items) assesses non-communicative activities related to viewing friends' "About" section on their profiles and an example item is "looking at other's relationships status". The subscale photo activity (5 items) assesses activities related to the photos feature and an example item is "commenting on photographs". The subscale passive social monitoring (4 items) assesses non-communicative activities related to seeking personal information about others and an example item is "looking at or reading others' profiles". The subscale photo impression management (5 items) assesses non-communicative activities related to details regarding individuals' main profile pictures and an example item is "do you graphically edit your profile photos". The subscale linking (2 items) assesses non-communicative activities related to sharing or viewing links to external sites and an example item is "looking at links or video clips on other people's profile". The subscale posting self-in-focus photos (4 items) assesses non-communicative activities related to selecting main profile pictures that clearly display the individual and an example item is "is the picture of your face only a 'head shot'". The subscale family activity (2 items)

assesses activities related to interaction with family members and an example item is "looking at pages of relatives". The subscale group interaction (4 items) assesses communicative activities related to the groups and events features and an example item is "responding to events or invitations". The subscale social interaction (3 items) assesses communicative activities related to direct contact with another friend and an example item is "sending private messages to others".

Participants rate how much they engage in the described activity on a scale from 1 (*never*) to 5 (*always\frequently*). Because all subscales do not have the same number of items, and thus will have different ranges of scores, I created mean scores for each subscale. I made minimal wording changes in order to represent the most current version of the Facebook website. For example, two items reference a Facebook user's wall and "wall" will be replaced with "Timeline" as the features are identical, but the name has changed from wall to Timeline in the most current version of the Facebook website. Also, one item references the "mini-feed", a feature that has been removed from the current version of Facebook, so "mini-feed" was replaced with "News Feed" as the features are similar. Two items on the posting self-in-focus photos subscale were reverse coded so that higher scores were more indicative of posting photos emphasizing the self rather than the context of the photo. I deleted one item from the posting self-in-focus photos subscale to improve internal consistency on scores on that subscale (i.e., $\alpha = .56$ was improved to $\alpha = 62$). The subscale family activity was not retained for the analyses due to an unacceptable internal consistency ($\alpha = .39$). Higher scores on the FAM subscales indicate greater frequency of engagement in the target activity. According to Cohen's (1988)

standards, scores on the measure displayed acceptable to strong internal consistency (low $\alpha = .62$; high $\alpha = .89$) with the current sample.

Facebook motivation. Because the construct of motivation was central to the purpose of the present study, it was important that I thoroughly assessed Facebook motivation. To do that, I balanced survey brevity with total number of assessed motivations, psychometric properties, and connection to theory, particularly regarding intrinsic and extrinsic motivations. This process resulted in my decision to use an altered version of the Drinking Motives Questionnaire-Revised (DMQ-R; Cooper, 1994), what I call the Facebook Motives Questionnaire (FMQ) and the escapism subscale from the Motives for Facebook survey (MfF; Smock et al., 2011). Because the FMQ contains 5 items for each subscale and the MfF escapism subscale contains only 3 items, and thus would have different ranges of scores, I created mean scores for each subscale. Higher scores indicate a greater likelihood to access Facebook based on the described motivation. For each measure, I describe its structure, intended purpose, the included modifications in order to enhance fit with the purpose of the present study, what higher scores indicate, and psychometric properties for scores.

I used the Facebook Motives Questionnaire (FMQ; Appendix H) which is an altered version of Cooper's (1994) Drinking Motives Questionnaire-Revised (DMQ-R). The DMQ-R contains 20 items and was originally designed to assess motivations for consuming alcoholic beverages using Cox and Klinger's (1988; 1990) model. Cox and Klinger (1988; 1990) proposed that drinking motives can be characterized on two dimensions that reflect the valence (positive vs. negative) and source (internal vs. external) of the outcomes individuals intend to achieve through drinking. That is,

individuals may intend to consume alcohol in order to obtain a positive outcome or to avoid a negative outcome. Further, individuals' motivations to consume alcohol can be an effort to regulate internal emotions or to gain external reward. Crossing these two dimensions results in the DMQ-R's 4 subscales (i.e., coping, conforming, enhancing, and socializing) with each containing 5 items. The coping subscale assesses internal (i.e., intrinsic) motivations to drink in order to regulate negative affect and an example item is "because it helps me when I feel depressed or nervous". The conforming subscale assesses the external (i.e., extrinsic) motivations to regulate negative affect by avoiding social rejection and an example item is "to fit in with a group I like". The enhancing subscale assesses the internal (i.e., intrinsic) motivations to drink in order to heighten positive affect and an example item is "because it's fun". The socializing subscale assesses the external (i.e., extrinsic) motivations to drink in order to maximize positive affect through social rewards and an example item is "to celebrate a special occasion with friends".

The FMQ is a revision of the DMQ-R and is designed to empirically assess intrinsic and extrinsic motivations for accessing Facebook to regulate positive and negative affect. The questionnaire was derived by altering items from the DMQ-R (Cooper, 1994; H. Servaty-Seib, M. Suchak, S. Tedrick-Parikh & O. Ozmen, personal communication, December 9, 2010). The revision involved minimal changes in order to maintain Cooper's original intent. More specifically the prompt "I drink…" was changed to read "I access Facebook…", the item "because my friends pressure me to drink" was changed to "because my friends pressure me to access Facebook", and the item "to get high" was changed to "to get a rush." As based on the DMQ-R, respondents rate their

level of propensity to access Facebook with the described motivation on a scale from 1 (*almost never/never*) to 5 (*almost always/always*) with a potential range of 5 to 25 on each subscale. Higher scores on each subscale indicate a higher motivation to access Facebook for that specific purpose. According to Cohen's (1988) standards, scores on the measure displayed good to strong internal consistency (low $\alpha = .74$, high $\alpha = .83$) with the current sample.

At the suggestion of my dissertation committee, I included the escapism subscale from the MfF (3 items; Smock et al., 2011) to assess the extrinsic motivation to find distraction through using Facebook. An example item is "so I can forget about school, work, or other things." Participants rated their level of propensity to access Facebook with the described motivation on a scale from 1 (*almost never/never*) to 5 (*almost always/always*) with a potential range of 3 to 15 on the subscale. According to Cohen's (1988) standards, scores on the subscale displayed good internal consistency ($\alpha = .70$) with the current sample.

Based on the motivation literature and SDT in particular, I have tentatively classified the escapism subscale into the extrinsic category. The original scale authors did not classify the motivation subscales into categories, but for the purposes of the present study such a classification is beneficial. My classification is based on similarity between items on these subscales and items on the subscales for the FMQ.

Procedure

I sought and received Institutional Review Board exemption prior to collecting data. Upon receiving approval, I constructed an online survey using the Qualtrics computer program. A link to the survey was included in my recruitment email (Appendix

L) and disseminated to a random sample of 4,000 Purdue University undergraduate students between ages 18-29 through the Purdue University Registrar's Office online information system, Webserv. Interested participants followed the link and read the participant's information letter (Appendix M) that described the purpose of the present study and allowed for the participant to voluntarily complete the online survey. One week later I sent a follow-up email (Appendix N) to the Registrar's Office staff that was forwarded to the same 4,000 students who received the initial email. By using this process of data collection, I never had access to the randomly selected participants.

To ensure confidentiality, no identifying information was collected from the participants, and the responses were kept on a secure, password-protected computer system. The data was accessible only to me and my research advisor. Also to ensure confidentiality, participants who chose to be entered into a drawing for one of ten $10 Amazon.com gift cards were directed to send an email to me upon completing the questionnaire with "participated in study" in the subject line and no additional text. This procedure ensured that email addresses were not connected to survey responses.

CHAPTER IV. RESULTS

I provide the results of the present study in this chapter. First, I explain the

processes of data screening and preliminary analyses. Next, I describe the primary

analyses used to assess my research questions and the associated hypotheses.

Specifically, I provide the findings from the four hierarchical multiple regression (HMR)

analyses and one simultaneous multiple regression (SMR) analysis using Facebook

motivations and Facebook activities as my independent variables, including the

hypotheses testing results. Next, I describe the findings from the Canonical Correlation

Analysis (CCA). Finally, I describe the findings from the four HMR and one SMR

analyses using the identified canonical correlates as independent variables.

Data Screening

I examined the data to ensure data entry accuracy and to verify that all

participants met predetermined inclusion criteria for the present study prior to performing

the preliminary and primary analyses. Additionally, I conducted data screening

procedures to identify unique characteristics within the data to detect potential outliers

and examine the distribution of data.

First, I verified data entry for accuracy. I generated an SPSS data file from the

web-based survey to ensure the data file contained no errors. I also examined the data to

identify participants who fit inclusion criteria for the present study (i.e., domestic, full-

time undergraduate students between the ages of 18 and 29 years who currently had an

active Facebook profile). A total of 328 individuals submitted surveys, representing an 8.2% response rate. Of the 328 cases, I removed six cases because they chose to not participate in the present study. I removed eight cases because the participants indicated their Facebook account was currently deactivated. I removed five cases because they endorsed having never registered a personal Facebook account. Additionally, I removed 48 cases because they endorsed being described as something other than a domestic, full-time, undergraduate student. Specifically, these participants endorsed being an international student ($n = 3$), part-time student ($n = 4$), master's student ($n = 23$), doctoral student ($n = 23$), professional student ($n = 4$), or identified themselves as an "other student" (i.e., PharmD, BS\MS student; $n = 2$).

Next, I conducted data screening procedures at the item level and to assess for patterns within the missing data. Out of the remaining 261 cases, I removed 46 that had more than 5 missing data points because 6 items was equivalent to 5.77% of the 104 required items. Tabachnick and Fidell (2007) state that if 5% or less of data are missing from a large data set, the problem of missing data is not serious and can be addressed by almost any procedure for replacing missing data. Then, I assessed for missing data patterns using the SPSS 22.0 procedure Missing Values Analysis (Tabachnick & Fidell, 2007). I found no discernible pattern. Specifically, Little's Missing Completely at Random Test (MCAR) was statistically nonsignificant ($p = .33$), which indicated there was greater than a 95% chance that the pattern of missing data was random. Items requiring reverse scoring procedures were reverse scored. Then, I replaced missing items using the SPSS 22.0 procedure linear trend at point. I provided a summary of the

removed cases in Table 6. After conducting these procedures, the remaining sample size

was 215.

Table 6. *Summary of Removed Cases from 328 Respondents*

Reason for Removal	Number of Cases
Facebook Account Variables	
Currently deactivated	8
Never registered a Facebook account	5
Participant Variables	
International students	3
Part-time students	4
Master's students	12
Doctoral students	23
Professional students	4
"Other" (i.e., PharmD, BS\MS student)	2
Missing Data	
Chose to not participate in study	6
>5% of required items missing	46
Total cases removed	113
Remaining *n*	215

The data were screened for univariate and multivariate outliers. Boxplot analyses

were used to identify univariate outliers. Next, I used SPSS 22.0 to calculate z-scores for

all continuous variables. Tabachnick and Fidell (2007) described z scores in excess of

3.29 standard deviations from the mean as univariate outliers. Using this criterion I

identified 24 potential outliers on 12 variables (i.e., hours online each day $n = 3$; hours on

Facebook $n = 2$; Facebook friends $n = 3$; identity distress $n = 1$; social connectedness $n =$

3; Facebook motivation to cope $n = 2$; Facebook motivation to socialize $n = 1$; Facebook

motivation to conform $n = 4$; Facebook motivation to escape $n = 1$; Facebook activity of

social comparison $n = 1$; Facebook activity of photo activity $n = 1$; Facebook activity of group interaction $n = 2$). However, the 24 identified potential outliers fell within the possible range of scores for the respective measures and represented the low end of scores on social connectedness and the high end of scores on the other 12 measures. I chose not to delete these 24 identified potential outliers as the variance with in the data would have decreased and the true nature of the sample population could have possibly been misrepresented (Tabachnick & Fidell, 2007; Van Oorsouw & Merckelbach, 2007). Next, to identify multivariate outliers, I conducted a Mahalanobis Distance test. After I calculated the Mahalanobis Distance values, the obtained standardized values were presented as p-values on the Chi-Square distribution. SPSS identified seven cases as statistically significant ($p < .001$) and I deleted them because removing multivariate outliers can improve the accuracy of the results in regression analyses by reducing the risk of Type I and Type II errors (Osborne, 2001; Tabachnick & Fidell, 2007). The deletion of these cases resulted in a final sample of 208 participants for the present study.

According to the results of a power analysis for simultaneous multiple regression (Faul, Erdfelder, Buchner, & Lang, 2009), a sample size of at least 189 is necessary to detect a medium effect size with .95 power using my 13 predictors (i.e., 8 Facebook activities, 5 Facebook motivations). A post hoc power analysis revealed the present study with 208 cases had .97 power to detect a medium effect size (Faul et al., 2009). Tabachnick and Fidell (2007) suggest 10 cases are needed for each variable included in a CCA. For the present study with 13 total independent variables (i.e., 8 Facebook activities, 5 Facebook motivations), only 130 cases were required to run the CCA.

Finally, the normality of the data was assessed in the last step of data screening. I assessed the primary study variables for skewness and kurtosis because Tabachnick and Fidell (2007) maintain the assumption of a normal distribution of the data in SMR and CCA. These analyses revealed a number of results. First, a normal distribution of the data existed for 14 out of the 18 independent and dependent variables. Next, significant skewness (i.e., skewness greater than $|1.00|$) was identified for the four following Facebook motivations: to cope (1.81), to enhance (1.12), to socialize (1.22), and to conform (2.05). Because the significance of skewness is diminished with large sample sizes, especially those over 200, and the final sample size for the present study was 208 I did not transform the Facebook motivations to cope, enhance, socialize, and conform (Baklizi, 2008; Tabachnick and Fidell, 2007).

Preliminary Analyses

I conducted preliminary analyses to assess the internal consistency of scores on all scales and subscales used in the present study as well as to determine basic descriptive information within the data. Also, correlational analyses for multicollinearity and to determine of significant associations existed between continuous demographic and background variables (e.g., age, miles from high school residence while at college) and the primary study variables (e.g., loneliness, social-connectedness). Finally, I conducted multivariate analyses of variance (MANOVAs) to assess for possible significant group differences based on the categorical demographic and background variables (e.g., gender, year in school, relationship status) for the primary study variables (e.g., loneliness, social connectedness).

I computed means, standard deviations, medians, modes, and ranges for the primary study variables (Table 7). Participant's demographic information is provided in Chapter III. Internal consistencies for scores on the primary variables are displayed in Table 5. After I excluded the non-communicative Facebook activity of family activity, the remaining variables were included in the preliminary and primary analyses and yielded adequate Cronbach's alphas (Cohen, 1988).

Table 7. *Descriptive Statistics for Primary Study Variables*

Variable	Mean	Standard Deviation	Median	Mode	Minimum Score	Maximum Score
Interpersonal Functioning						
Loneliness	41.19	14.34	41.93	37.00	15.00	82.00
Social connectedness	31.47	6.85	32.00	32.00	8.00	40.00
Intrapersonal Functioning						
Identity distress	22.19	6.51	22.00	15.00	10.00	46.00
Life-satisfaction	25.00	5.81	26.00	30.00	7.00	35.00
Conscientiousness[a]	34.67	5.36	35.00	35.00	20.00	45.00
Facebook Engagement						
Intrinsic Motivations						
To cope	6.89	2.71	6.00	5.00	5.00	18.00
To enhance	8.62	3.62	8.00	5.00	5.00	20.00
Extrinsic Motivations						
To socialize	9.55	4.02	8.00	8.00	5.00	24.00
To conform	6.90	2.67	6.00	5.00	5.00	19.00
To escape	5.81	2.54	5.00	3.00	3.00	15.00
Non-Communicative Facebook Activities						
Social comparison	1.86	.74	2.00	1.00	1.00	4.00
Photo activity	2.59	.68	2.60	2.40	1.00	4.80
Passive Social Monitoring	3.25	.64	3.25	3.25	1.50	4.75
Photo impression mgmt	2.17	.64	2.20	2.00	1.00	4.20
Linking	2.71	.89	3.00	3.00	1.00	5.00
Photo: Self-in-Focus	2.73	.77	2.67	2.67	1.00	5.00
Communicative Facebook Activities						
Group interaction	2.27	.75	2.25	2.50	1.00	5.00
Social interaction	3.02	.87	3.00	3.00	1.00	5.00

Note. [a] The dependent variable conscientiousness was included after the present study was proposed as a result of my committee's suggestion.

I performed correlational analyses (Table 8) to identify general relationships among primary study variables. All correlations identified among the primary study variables (i.e., measures of interpersonal functioning, intrapersonal functioning, and Facebook motivations, and Facebook activities), were below .85, indicating a minimal likelihood of multicollinearity problems among these variables (Kline, 2011). Most of the variables' associations were in the expected directions and many reached statistical significance.

Table 8. *Bivariate Correlations of Primary Study Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Loneliness	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2. Social connectedness	-.40**	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3. Identity distress	.37**	-.41**	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4. Life-satisfaction	-.46**	.41**	-.41**	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Conscientiousness	-.31**	.24**	-.31**	.29**	1.00	-	-	-	-	-	-	-	-	-	-	-	-	-
Intrinsic Motivations																		
6. To cope	.07	-.10	.23**	.01	-.19**	1.00	-	-	-	-	-	-	-	-	-	-	-	-
7. To enhance	-.13	.02	-.02	.22**	.03	.56**	1.00	-	-	-	-	-	-	-	-	-	-	-
Extrinsic Motivations																		
8. To socialize	-.10	.01	.02	.08	.03	.58**	.73**	1.00	-	-	-	-	-	-	-	-	-	-
9. To conform	.08	-.18**	.29**	.00	-.14*	.67**	.52**	.55**	1.00	-	-	-	-	-	-	-	-	-
10. To escape	.10	-.01	.19**	.03	-.11	.52**	.45**	.43**	.34**	1.00	-	-	-	-	-	-	-	-
Non-communicative FB Acts																		
11. Social comparison	.06	-.18*	.11	.08	-.12	.39**	.24**	.30**	.33**	.22**	1.00	-	-	-	-	-	-	-
12. Photo activity	-.11	.06	.01	.18**	.01	.37**	.31**	.38**	.25**	.23**	.51**	1.00	-	-	-	-	-	-
13. Passive soc'l monitoring	-.06	.13	.02	.19**	-.05	.23**	.30**	.29**	.13	.33**	.35**	.55**	1.00	-	-	-	-	-
14. Photo impression mgmt.	.03	-.00	.17*	.04	-.06	.29**	.28**	.31**	.30**	.24**	.27**	.39**	.33**	1.00	-	-	-	-
15. Linking	-.21**	-.01	.03	.27**	-.07	.25**	.21**	.30**	.22**	.18**	.38**	.45**	.40**	.26**	1.00	-	-	-
16. Self-in-Focus Photos	.23**	-.23**	.27**	-.21**	-.08	.11	.10	.13	.09	.15*	.06	.03	.03	.32**	.06	1.00	-	-
Communicative FB Acts																		
17. Group interaction	.02	.01	.01	.17*	-.05	.37**	.21**	.32**	.32**	.20**	.37**	.46**	.26**	.33**	.44**	.02	1.00	-
18. Social interaction	-.10	.01	-.05	.06	.01	.23**	.19**	.28**	.20**	.07	.37**	.42**	.29**	.15*	.32**	.06	.42**	1.00

Note. *p < .05; **p < .01

I conducted correlational analyses with the continuous demographic and background variables to determine possible significant associations between these variables and the dependent variables (i.e., loneliness, social connectedness, identity distress, life-satisfaction, and conscientiousness). Table 9 contains the correlations between the continuous demographic variables (i.e., age, miles from high school residence, hours online per day, hours on Facebook per day, number of Facebook friends) and the dependent variables. As indicated, hours online per day was negatively and significantly correlated with conscientiousness ($r = -.18$, $p = .01$). Number of Facebook friends was a) positively and significantly correlated with social connectedness ($r = .14$, $p = .05$) and life-satisfaction ($r = .25$, $p < .001$) and b) negatively and significantly correlated with loneliness ($r = -.21$, $p = .003$).

Table 9. *Bivariate Correlations among Demographic Variables and Dependent Variables*

Variable	1	2	3	4	5	6	7	8	9	10
Interpersonal Functioning										
1. Loneliness	1.00	-	-	-	-	-	-	-	-	-
2. Social connectedness	-.40**	1.00	-	-	-	-	-	-	-	-
Intrapersonal Functioning										
3. Identity distress	.37**	-.41**	1.00	-	-	-	-	-	-	-
4. Life-satisfaction	-.46**	.41**	-.41**	1.00	-	-	-	-	-	-
5. Conscientiousness	-.31**	.24**	-.31**	.29**	1.00	-	-	-	-	-
Demographic Variables										
6. Age	-.06	-.06	.01	.02	-.07	1.00	-	-	-	-
7. Miles \ hs residence[a]	-.00	.07	.09	.06	-.05	.00	1.00	-	-	-
8. Hrs online \ day	.11	.00	-.07	-.05	-.18*	-.02	-.03	1.00	-	-
9. Hrs on FB \ day	.03	-.02	-.01	.02	-.08	-.05	-.02	.40**	1.00	-
10. Facebook friends	-.21**	.14*	-.09	.25**	-.03	.13	.11	-.15*	-.02	1.00

Note. [a] Miles from high school residence.
*p < .05; **p < .01

I conducted six one-way MANOVAs to determine if scores on the dependent variables (i.e., loneliness, social connectedness, identity distress, life-satisfaction, and conscientiousness) varied as a function of the categorical demographic variables (i.e., gender, sexual orientation, race\ethnicity, year in school, relationship status, and employment status). At least one of the dependent variables varied as a function of the following categorical demographic variables: gender, sexual orientation, and relationship status; however, because the effect sizes of these differences were low, these variables were not considered in the primary analyses. The dependent variables did not vary as a function of the remaining categorical demographic variables (i.e., race\ethnicity, year in school, employment status). An extended description of these MANOVA analyses can be found in Appendix N.

Primary Analyses

I reiterate my four research questions and the associated hypotheses in this section. I then provide the results of the analyses I used to address each question and to test each hypothesis.

Facebook Activities, Motivations, and Interpersonal and Intrapersonal Functioning

My first research question was: Are certain Facebook activities (i.e., non-communicative and communicative) associated with adaptive and maladaptive factors of interpersonal (i.e., social connectedness, loneliness) and intrapersonal (i.e., life-satisfaction, identity distress) functioning? I hypothesized that communicative Facebook activities (e.g., group interaction, social interaction) would be positively associated with adaptive interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning and would be negatively associated with maladaptive interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning.

My second research question was: Are certain motivations (i.e., intrinsic, extrinsic) for accessing Facebook associated with adaptive and maladaptive factors of interpersonal (i.e., social connectedness, loneliness) and intrapersonal (i.e., life-satisfaction, identity distress) functioning? I hypothesized that intrinsic motivations for accessing Facebook (e.g., enhance, cope) would be positively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning and would be negatively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning. I also hypothesized that extrinsic motivations for accessing Facebook (e.g., socialize, conform) would be negatively associated with adaptive factors of interpersonal (i.e., social

connectedness) and intrapersonal (i.e., life-satisfaction) functioning and positively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning.

I addressed my first two research questions and tested the associated hypotheses by performing five total regression analyses; that is, each of the five dependent variables (i.e., social connectedness, loneliness, life-satisfaction, identity distress, and conscientiousness) was tested separately. As a result of the primary analyses, I performed HMR due to significant associations between demographic variables and a DV. Step 2 for all four HMRs (i.e., social connectedness, loneliness, life satisfaction, conscientiousness) included the 6 non-communicative Facebook activities (i.e., social comparison, photo activity, passive social monitoring, photo impression management, linking, posting self-in-focus photos), 2 communicative Facebook activities (i.e., group interaction, social interaction), 2 intrinsic Facebook motivations (i.e., to cope, to enhance) and 3 extrinsic Facebook motivations (i.e.,. to socialize, to conform, to escape) as IVs. These same IVs were used in the SMR for identity distress. Step 1 for all four HMRs included one demographic and background variable, either number of Facebook friends (i.e., social connectedness, life-satisfaction, loneliness) or number of hours online per day (i.e., conscientiousness).

Adaptive interpersonal functioning: Social connectedness. HMR allowed me to test my hypotheses by specifically identifying how much variance in social connectedness was accounted for by the primary IVs (i.e., Facebook motivations and Facebook activities). Table 10 displays the change in R^2 (ΔR^2) after steps 1 and 2, the standardized regression coefficients (β), and total R^2. The squared semi-partial

correlations (sr^2) which indicates the unique contribution of each individual variable can be found in Table 16 (p. 100). R was significantly different from zero at the end of each step. After step 2, with all IVs in the equation, $R = .42$, $F(14, 193) = 2.92$, $p < .001$, and explained 17.5% of the total variance in social connectedness. After step 1, with number of Facebook friends in the equation, $R^2 = .02$, $F(1, 193) = 4.06$, $p = .045$, and explained 2% of the total variance in social connectedness. Number of Facebook friends was significantly and positively associated with social connectedness. After step 2, the extrinsic Facebook motivation to conform and the non-communicative Facebook activities of social comparison and posting self-in-focus photos were significantly and negatively associated with social connectedness, $\Delta R^2 = .16$, $F_{inc}(1, 193) = 2.88$, $p = .001$.

The results partially supported the hypothesis that extrinsic Facebook motivations would be negatively associated with adaptive interpersonal functioning. The hypotheses that a) communicative Facebook activities and b) intrinsic Facebook motivations would be positively associated with adaptive interpersonal functioning were not supported. See Table 14 (p. 96) for a summary of hypotheses testing.

Table 10. *Summary of Variables Predicting Social Connectedness*

Variable	ΔR^2	β
Step 1	.02*	
Number of Facebook friends[a]		.14*
Step 2	.16**	
Number of Facebook friends[a]		.08
Intrinsic Facebook Motivations		
To cope		-.02
To enhance		.05
Extrinsic Facebook Motivations		
To socialize		.11
To conform		-.22*
To escape		.02
Non-communicative FB Activities		
Social comparison		-.24**
Photo activity		.05
Passive social monitoring		.14
Photo impression management		.08
Linking		-.04
Posting self-in-focus photos		-.24***
Communicative FB Activities		
Group interaction		.03
Social interaction		.05
Total R^2	.18**	
N	208	

Note. [a] = Demographic and background variable
*p < .05
**p < .01
***p < .001

Adaptive intrapersonal functioning: Life-satisfaction. HMR allowed me to test

my hypotheses by specifically identifying how much variance in life-satisfaction was

accounted for by the primary IVs (i.e., Facebook motivations and Facebook activities).

Table 11 displays the change in R^2 (ΔR^2) after steps 1 and 2, the standardized regression

coefficients (β), and total R^2. The squared semi-partial correlations (sr^2) which indicates

the unique contribution of each individual variable can be found in Table 16 (p. 100). R was significantly different from zero at the end of each step. After step 2, with all IVs in the equation, $R = .49$, $F(14, 193) = 4.25$, $p < .001$, and explained 23.6% of the total variance in life-satisfaction. After step 1, with number of Facebook friends in the equation, $R^2 = .06$, $F(1, 193) = 13.98$, $p < .001$, and explained 6% of the total variance in life-satisfaction. Number of Facebook friends was significantly and positively associated with life-satisfaction. After step 2, number of Facebook friends, the intrinsic Facebook motivation to enhance and the non-communicative Facebook activity of linking were significantly and positively associated with life-satisfaction whereas the non-communicative Facebook activity of posting self-in-focus photos was significantly and negatively associated with life-satisfaction, $\Delta R^2 = .17$, $F_{inc}(1, 193) = 3.34$, $p < .001$. The results partially supported the hypotheses that intrinsic Facebook motivations would be positively associated with adaptive intrapersonal functioning. The hypotheses that a) extrinsic Facebook motivations would be negatively associated with maladaptive intrapersonal functioning and b) communicative Facebook activities would be positively associated with adaptive intrapersonal functioning were not supported. See Table 14 (p. 96) for a summary of hypotheses testing.

Table 11. *Summary of Variables Predicting Life-satisfaction*

Variable	ΔR^2	β
Step 1	.06***	
Number of Facebook friends[a]		.25***
Step 2	.17***	
Number of Facebook friends[a]		.14*
Intrinsic Facebook Motivations		
To cope		-.14
To enhance		.39***
Extrinsic Facebook Motivations		
To socialize		-.16
To conform		-.07
To escape		-.04
Non-communicative FB Activities		
Social comparison		-.02
Photo activity		.04
Passive social monitoring		.05
Photo impression management		-.02
Linking		.22**
Posting self-in-focus photos		-.20**
Communicative FB Activities		
Group interaction		.11
Social interaction		-.05
Total R^2	.23***	
N	208	

Note. [a] = Demographic and background variable
*p < .05
**p < .01
***p < .001

Maladaptive interpersonal functioning: Loneliness. HMR allowed me to test

my hypotheses by specifically identifying how much variance in loneliness was

accounted for by the primary IVs (i.e., Facebook motivations and Facebook activities).

Table 12 displays the change in R^2 (ΔR^2) after steps 1 and 2, the standardized regression

coefficients (β), and total R^2. The squared semi-partial correlations (sr^2) which indicates

the unique contribution of each individual variable can be found in Table 16 (p. 100). R was significantly different from zero at the end of each step. After step 2, with all IVs in the equation, $R = .48$, $F(14, 193) = 4.04$, $p < .001$, and explained 22.7% of the total variance in loneliness. After step 1, with number of Facebook friends in the equation, $R^2 = .04$, $F(1, 193) = 9.28$, $p = .003$, and explained 4.3% of the total variance in loneliness. Number of Facebook friends was significantly and negatively associated with loneliness. After step 2, the intrinsic Facebook motivation to enhance and the non-communicative Facebook activity of linking were significantly and negatively associated with loneliness whereas the non-communicative Facebook activity of posting self-in-focus photos was significantly and positively associated with loneliness, $\Delta R^2 = .18$, $F_{inc} (14, 193) = 3.53$, $p < .001$.

The results partially supported the hypotheses that intrinsic Facebook motivations would be negatively associated with maladaptive interpersonal functioning. The hypotheses that a) extrinsic Facebook motivations would be positively associated with maladaptive interpersonal functioning and b) communicative Facebook activities would be negatively associated with maladaptive interpersonal functioning were not supported. See Table 14 (p. 96) for a summary of hypotheses testing.

Table 12. *Summary of Variables Predicting Loneliness*

Variable	ΔR^2	β
Step 1	.04**	
Number of Facebook friends[a]		-.21**
Step 2	.18***	
Number of Facebook friends[a]		-.13
Intrinsic Facebook Motivations		
To cope		.06
To enhance		-.21*
Extrinsic Facebook Motivations		
To socialize		-.11
To conform		.15
To escape		.14
Non-communicative FB Activities		
Social comparison		.14
Photo activity		-.06
Passive social monitoring		.05
Photo impression management		-.02
Linking		-.26**
Posting self-in-focus photos		.23**
Communicative FB Activities		
Group interaction		.14
Social interaction		-.10
Total R^2	.22***	
N	208	

Note. [a] = Demographic and background variable; *p < .05; **p < .01; ***p < .001

Maladaptive intrapersonal functioning: Identity distress. SMR allowed me to test my hypotheses by specifically identifying how much variance in identity distress was accounted for by the primary IVs (i.e., Facebook motivations and Facebook activities). Table 13 displays the unstandardized regression coefficients (*B*), the standard error (SE *B*), the standardized regression coefficients (β), and the squared semi-partial correlations (sr^2) which indicates the unique contribution of each individual variable. The overall

regression, including the 13 IVs, was statistically significant, $R = .50$, $R^2 = .25$, adjusted $R^2 = .20$, $F(13, 194) = 4.88$, $p < .001$. Identity distress scores were significantly associated with this set of 13 variables.

I assessed the squared semi-partial correlations (sr^2) to identify the unique contribution of each individual variable. Three of the thirteen variables significantly contributed to identity distress scores; these included the intrinsic motivation to enhance (negative association; explained 3% of the total variance), the extrinsic motivation to conform (positive association; explained 6% of the total variance), and the non-communicative Facebook activity of posting self-in-focus photos (positive association; explained 5% of the total variance).

The results partially supported the hypotheses that a) intrinsic Facebook motivations would be negatively associated with maladaptive intrapersonal functioning and that b) extrinsic Facebook motivations would be positively associated with maladaptive intrapersonal functioning. The hypothesis that communicative Facebook activities would be negatively associated with maladaptive interpersonal functioning was not supported in the present study. See Table 14 (p. 96) for a summary of hypotheses testing.

Table 13. *Summary of Variables Predicting Identity Distress*

Variable	B	SE B	β	sr^2
Intrinsic Facebook Motivations				
To cope	.31	.24	.13	.01
To enhance	-.48	.17	-.27**	.03
Extrinsic Facebook Motivations				
To socialize	-.22	.16	-.14	.01
To conform	.90	.22	.37***	.06
To escape	.35	.20	.14	.01
Non-communicative FB Activities				
Social comparison	.38	.68	.04	.00
Photo activity	-.13	.86	-.01	.00
Passive social monitoring	.39	.83	.04	.00
Photo impression management	.47	.76	.05	.00
Linking	-.01	.55	-.00	.00
Posting self-in-focus photos	2.05	.57	.24***	.05
Communicative FB Activities				
Group interaction	-.77	.69	-.09	.00
Social interaction	-.55	.56	-.07	.00

Note. *p < .05; **p < .01; ***p < .001

Table 14. *Summary of Hypotheses Testing*

#	Hypothesis	Outcome
1a	Communicative Facebook activities (e.g., group interaction, social interaction) will be positively associated with adaptive interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning.	Not Supported
1b	Communicative Facebook activities (e.g., group interaction, social interaction) will be negatively associated with maladaptive interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning.	Not Supported
2a	Intrinsic motivations for accessing Facebook (e.g., enhance, cope) will be positively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning and negatively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning.	Partially Supported
2b	Extrinsic motivations for accessing Facebook (e.g., socialize, conform) will be positively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning and negatively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning.	Partially Supported

Conscientiousness. HMR allowed me to identify how much variance in conscientiousness was accounted for by the primary IVs (i.e., Facebook motivations and Facebook activities). Although I made no hypotheses regarding this DV, it was included following the proposal meeting as per my committee's recommendations and the findings were of interest. Table 15 displays the change in R^2 (ΔR^2) after steps 1 and 2, the standardized regression coefficients (β), and total R^2. The squared semi-partial correlations (sr^2) which indicates the unique contribution of each individual variable can be found in Table 16 (p. 100). R was significantly different from zero at the end of step 1. After step 2, with all IVs in the equation, $R = .36$, $F(14, 193) = 2.09$, $p = .014$, and explained 13.2% of the total variance in conscientiousness. After step 1, with number of hours online each day in the equation, $R^2 = .03$, $F(1, 193) = 6.55$, $p = .011$, and explained 3.1% of the total variance in conscientiousness. Number of hours online per day was significantly and negatively associated with conscientiousness. After step 2, adding the primary IVs (i.e., Facebook motivations and Facebook activities) did not significantly improve the explained variance in conscientiousness, $\Delta R^2 = .10$, F_{inc} (1, 193) = 1.73, $p = .058$.

Table 15. *Summary of Variables Predicting Conscientiousness*

Variable	ΔR^2	β
Step 1	.03*	
Number of hours online per day[a]		-.18*
Step 2	.10	
Number of hours online per day[a]		-.20**
Intrinsic Facebook Motivations		
To cope		-.24*
To enhance		.17
Extrinsic Facebook Motivations		
To socialize		.17
To conform		-.10
To escape		-.07
Non-communicative FB Activities		
Social comparison		-.06
Photo activity		.10
Passive social monitoring		-.08
Photo impression mgmt		-.03
Linking		-.05
Posting self-in-focus photos		-.07
Communicative FB Activities		
Group interaction		.03
Social interaction		.06
Total R^2	.13*	
N	208	

Note. [a] = Demographic and background variable; *p < .05; **p < .01

All regression analyses yielded significant results. Conscientiousness was the only variable tested with HMR that did not yield significant results after step 2. That is, after accounting for the variance explained by the demographic and background variable (i.e., number of hours online per day), including Facebook motivations and Facebook activities in the model did not significantly improve the amount of variance explained in the DVs. The only significant IV was the intrinsic Facebook motivation to cope. Because the

variable conscientiousness was added after my committee made the recommendation, no

relationships were hypothesized among these variables. See Table 16 for the combined

results of the five regression analyses.

Table 16. *Combined Regression Results for all DVs*

Variable		Adaptive Functioning				Maladaptive Functioning					
		Social Connectedness		Life-Satisfaction		Loneliness		Identity Distress		Conscientiousness	
		β	sr^2	β	sr^2	β	sr^2	β	sr^2	β	sr^2
Demographic Variable											
# of Facebook friends	(step 1)	.14*	.02	.25***	.06	-.21**	.04	-	-	-	-
	(step 2)	.08	.01	.14*	.02	-.13	.02	-	-	-	-
# of hours online per day	(step 1)	-	-	-	-	-	-	-	-	-.18*	.03
	(step 2)	-	-	-	-	-	-	-	-	-.20**	.04
Intrinsic Facebook Motivation											
To cope		-.02	.00	-.14	.01	.06	.00	.13	.01	-.24*	.02
To enhance		.05	.00	.39***	.06	-.21*	.02	-.27**	.03	.17	.01
Extrinsic Facebook Motivation											
To socialize		.11	.00	-.16	.01	-.11	.00	-.14	.01	.17	.01
To conform		-.22*	.02	-.07	.00	.15	.01	.37***	.06	-.10	.00
To escape		.02	.00	-.04	.00	.14	.01	.14	.01	-.07	.00
Non-communicative Facebook Activity											
Social comparison		-.24**	.04	-.02	.00	.14	.01	.04	.00	-.06	.00
Photo activity		.05	.00	.04	.00	-.06	.00	-.01	.00	.10	.00
Passive social monitoring		.14	.01	.05	.00	.05	.00	.04	.00	-.08	.00
Photo impression management		.08	.00	-.02	.00	-.02	.00	.05	.00	-.03	.00
Linking		-.04	.00	.22**	.03	-.26**	.04	-.00	.00	-.05	.00
Posting self-in-focus photos		-.24**	.05	-.20**	.03	.23**	.04	.24***	.05	-.07	.00
Communicative Facebook Activity											
Group interaction		.03	.00	.11	.01	.14	.01	-.09	.01	.03	.00
Social interaction		.05	.00	-.05	.00	-.10	.01	-.07	.00	.06	.00
R^2	(step 1)	.02*		.06***		.04**		.25***		.03*	
ΔR^2	(step 2)	.16**		.17***		.18***		-		.10	

Note. *p < .05; **p < .01; ***p < .001.

Facebook Engagement

My third research question was: Are certain Facebook activities associated with certain motivations to engage with Facebook? I had no hypotheses for this research question because this question was exploratory in nature. Previous research has indicated that intrinsic motivations (e.g., enhance, cope) are associated with communicative activities (e.g., group interaction, social interaction), but some extrinsic motivations (e.g., socialize, conform) have also been associated with communicative activities (e.g., social interaction). Also, no other study has specifically sought to explore associations between multiple types of both Facebook activities and multiple aspects of Facebook motivations. In sum, prior research regarding the possible relationships among activities and motivations was too limited to inform hypothesis development. I addressed this research question by performing a CCA.

I addressed my third research question with a CCA to explore the possible relationships among the five Facebook motivations (i.e., cope, enhance, socialize, conform, escape) and eight Facebook activities (e.g., social comparison, photo activity, passive social monitoring). CCA was deemed to be the most appropriate method of analysis because it is exploratory and descriptive, can reduce the risk of Type I errors, and is designed to capture the complexity of psychological research (Sherry & Hanson, 2005; Tabachnick & Fidell, 2007). A visual representation of the model can be found in Figure 2.
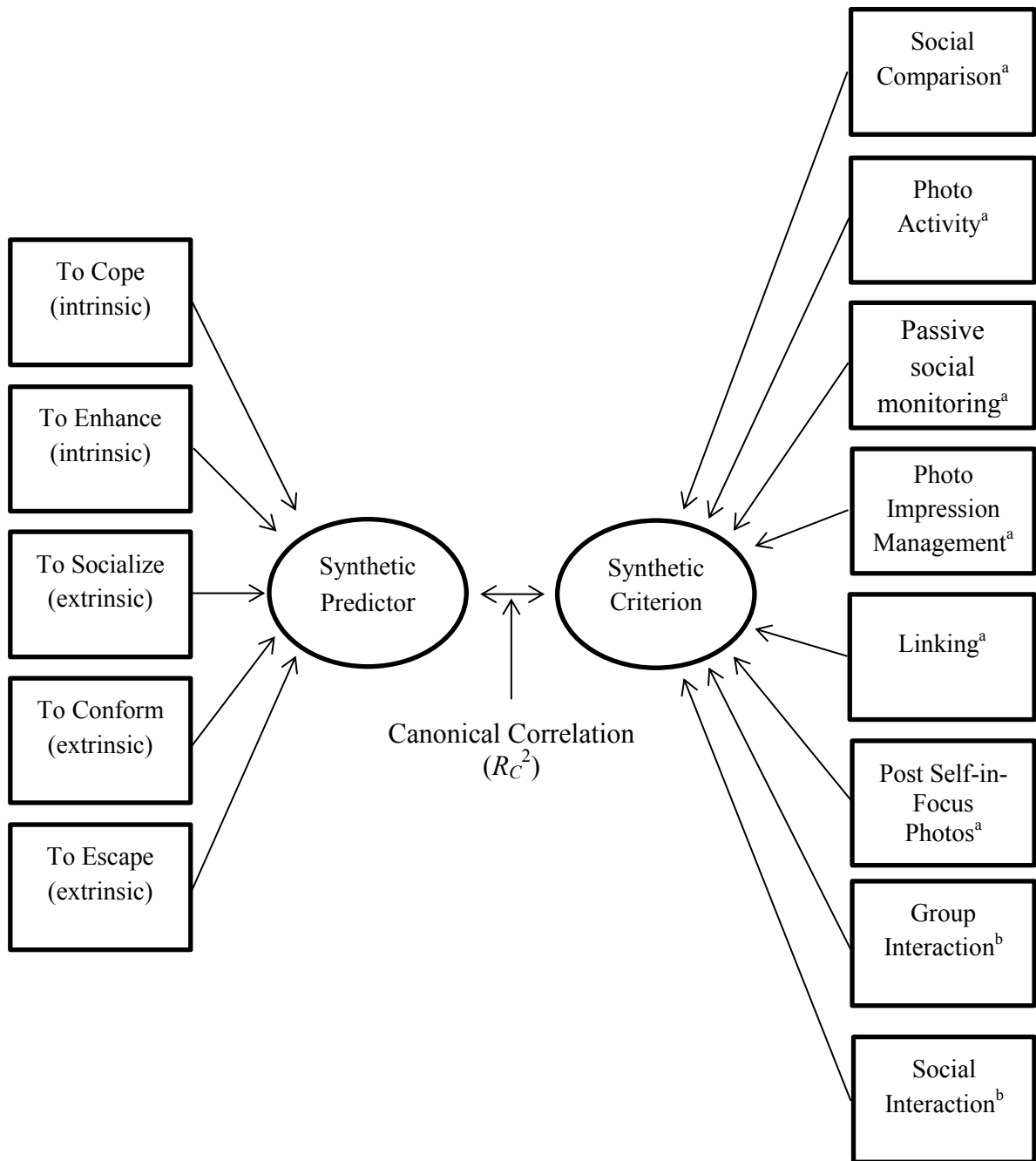
Figure 2. Conceptual model for canonical correlation analysis.
[a] Non-communicative Facebook activities; [b] Communicative Facebook activities.

To analyze and interpret the data from the CCA, I used the 5-step method outlined by Sherry and Hanson (2005) and used the syntax function in SPSS because no option is available to run a CCA using the drop-down menu. In step 1, I tested the significance of the full canonical model, which measures the shared variance between the Facebook motivations and Facebook activities across all the canonical functions. I also calculated the effect size. I used Wilks' lambda (λ) to test the model because it tends to have the most general applicability (Sherry & Henson, 2005).

The canonical correlation analysis yielded five functions with squared canonical correlations (R_c^2) of .29, .13, .04, .02, and .01 for each successive function. Collectively, the full model, across all functions, was statistically significant using the Wilks' $\lambda = .58$, $F(40, 852.78) = 2.88$, $p < .001$. I then took $1-\lambda$ to measure the full model effect size in an R^2 metric. This effect size was .42. For the set of five canonical functions, the R^2 type effect size was .29, which indicated that the full model explained approximately 29% of the variance shared between the variable sets (i.e., motivations and activities).

In step 2, I identified which canonical functions could be interpreted. Tabachnick and Fidell (2007) suggest that most researchers do not interpret canonical correlation coefficients (rc) lower than .30, which when squared explain less than 10% of the variance shared between the synthetic variables. In other words, if the canonical function could explain at least 10% of the variance shared between the two variables that were created by applying a linear equation to the Facebook motivations (i.e., the synthetic predictor variable) and another linear equation to the Facebook activities (i.e., the synthetic criterion variable) then they were interpreted. Two of the five squared canonical

correlations ($R_c{}^2$) met this criterion, Function 1 of .54($R_c{}^2$ = 29%) and Function 2 of

.38($R_c{}^2$ = 12%).

In step 3, I conducted and examined a dimension reduction analysis (i.e.,

removing one function at a time and assessing the significance of the remaining

functions; Sherry & Henson, 2005) to determine which hierarchical combination of

variates (i.e., functions) produced statistically significant findings. Because the full model

(Functions 1 to 5) was statistically significant, I tested the remaining functions in

hierarchical fashion to identify if any additional functions were statistically significant in

interpreting the model. Functions 2 to 5 was significant $F(28, 708.11) = 1.52, p = .04$.

The remaining Functions were not significant: Function 3 to 5 $F(18, 577.69) = .86, p =$

.63; Functions 4 to 5 $F(10, 396) = .65, p = .77$; Function 5 $F(4, 199) = .44, p = .78$.

In step 4, I identified the observed variables in the model that accounted for a

significant amount of variance in the synthetic variables (i.e., Facebook motivations and

Facebook activities) and that could be used in interpreting and naming the function. I

assessed the observed variables' contributions to the synthetic variables in terms of

directionality (i.e., positive vs. negative correlation) and magnitude, as determined by

assessing the standardized weights (i.e., canonical function coefficients, which are similar

to beta weights in regression analysis) and structure coefficients. In CCA, function

coefficients are the coefficients used in the linear equations to combine the observed

variables into the two respective synthetic variables (i.e., Facebook motivations and

Facebook activities). In essence, function coefficients assess the relative contribution of

one observed variable to the synthetic variable on the opposite side of the canonical

correlation (i.e., motivations with activities and vice versa) while factoring in the

contributions of all the other observed variables on the same side as the observed variable being assessed (i.e., motivations with motivations and activities with activities). Structure coefficients, on the other hand, are used to identify the direct contribution of one observed variable to the synthetic variable set of which it is a part separate from the contribution of other observed variables. For the present study, only variables with structure coefficients greater than .71 (indicating excellent individual contribution to the synthetic variable; Comrey & Lee, 1992) were included.

Table 17 presents the standardized canonical function coefficients and structure coefficients for Functions 1 (i.e., the full model) and Function 2. The squared structure coefficients are provided for each variable to identify the percentage of variance an each variable shares with the synthetic variable generated from the observed set of variables.

Table 17. *Canonical Solution for Facebook Motivations Predicting Facebook Activities for Significant Functions*

Variable	Function 1			Function 2		
	Coef	r_s	r_s^2 (%)	Coef	r_s	r_s^2 (%)
Intrinsic FB Motivations						
To cope	.54	.91	82.81	-.42	-.05	0.29
To enhance	-.15	.65	42.25	.65	.43	18.87
Extrinsic FB Motivations						
To socialize	.51	.84	70.56	-.07	.20	3.91
To conform	.19	.77	59.29	-.57	-.28	7.75
To escape	.06	.56	31.36	.82	.67	45.14
Canonical Correlation (R_c^2)			53.80			35.30
Non-communicative FB activities						
Social comparison	.37	.75	56.19	-.29	-.12	1.47
Photo activity	.25	.76	57.87	-.02	.18	3.24
Passive social monitoring	-.01	.50	25.13	1.06	.79	61.82
Photo impression management	.25	.63	39.87	-.05	.17	2.92
Linking	.07	.57	32.82	-.03	.10	.94
Post self-in-focus photos	.13	.25	6.44	.25	.23	5.21
Communicative FB activities						
Group interaction	.36	.75	56.55	-.27	-.18	3.13
Social interaction	.06	.52	26.90	-.24	-.16	2.40

Note. Coef = standardized canonical function coefficient; r_s = structure coefficient; r_s^2 = squared structure coefficient; r_s^2 % = percentage of variance an observed variable linearly shares with the synthetic variable generated from the observed set of variables; R_c^2 = Pearson r between synthetic predictor variable set and synthetic criterion variable set.

Regarding relevant contributors to Function 1, structure coefficients indicated that three Facebook motivations were excellent independent contributors (i.e., structure coefficients in excess of .71; Comrey & Lee, 1992) to the synthetic predictor variable and three Facebook activities were excellent independent contributors to the synthetic criterion variable. More specifically, the intrinsic Facebook motivation to cope (r_s = .91)

and the extrinsic Facebook motivations to socialize ($r_s = .84$) and to conform ($r_s = .77$) were the strongest measures of the synthetic predictor variable, explaining approximately 83%, 71%, and 59% of the variance each variable linearly and respectively shared with the Facebook motivation synthetic variable. The non-communicative Facebook activities social comparison ($r_s = .75$) and photo activity ($r_s = .76$), and the communicative Facebook activity group interaction ($r_s = .75$) were the strongest measures of the synthetic criterion variable, each explaining approximately 56%, 58%, and 57% of the variance, respectively (i.e., using the same .71 cutoff of structure coefficients; Comrey & Lee, 1992).

The fact that the structure coefficients for all significant variables were in the positive direction suggested that the three Facebook motivations (i.e., cope, socialize, conform) were positively related to one another and to the relevant contributing Facebook activities (i.e., social comparison, photo activity, and group interaction). That is, the results among Function 1 indicated that as the Facebook motivations to cope, socialize, and conform increased, so did the Facebook activities of social comparison, photo activity, and group interaction, and vice versa. As such, I labeled Function 1 "Common Facebook Engagement" to highlight the broad motivations (i.e., intrinsic and extrinsic) and activities (i.e., non-communicative and communicative) that accounted for the most typical engagement with Facebook among this college student sample. See Figure 3 for a graphical depiction of the first canonical function including all variables, regardless of structure coefficient value.
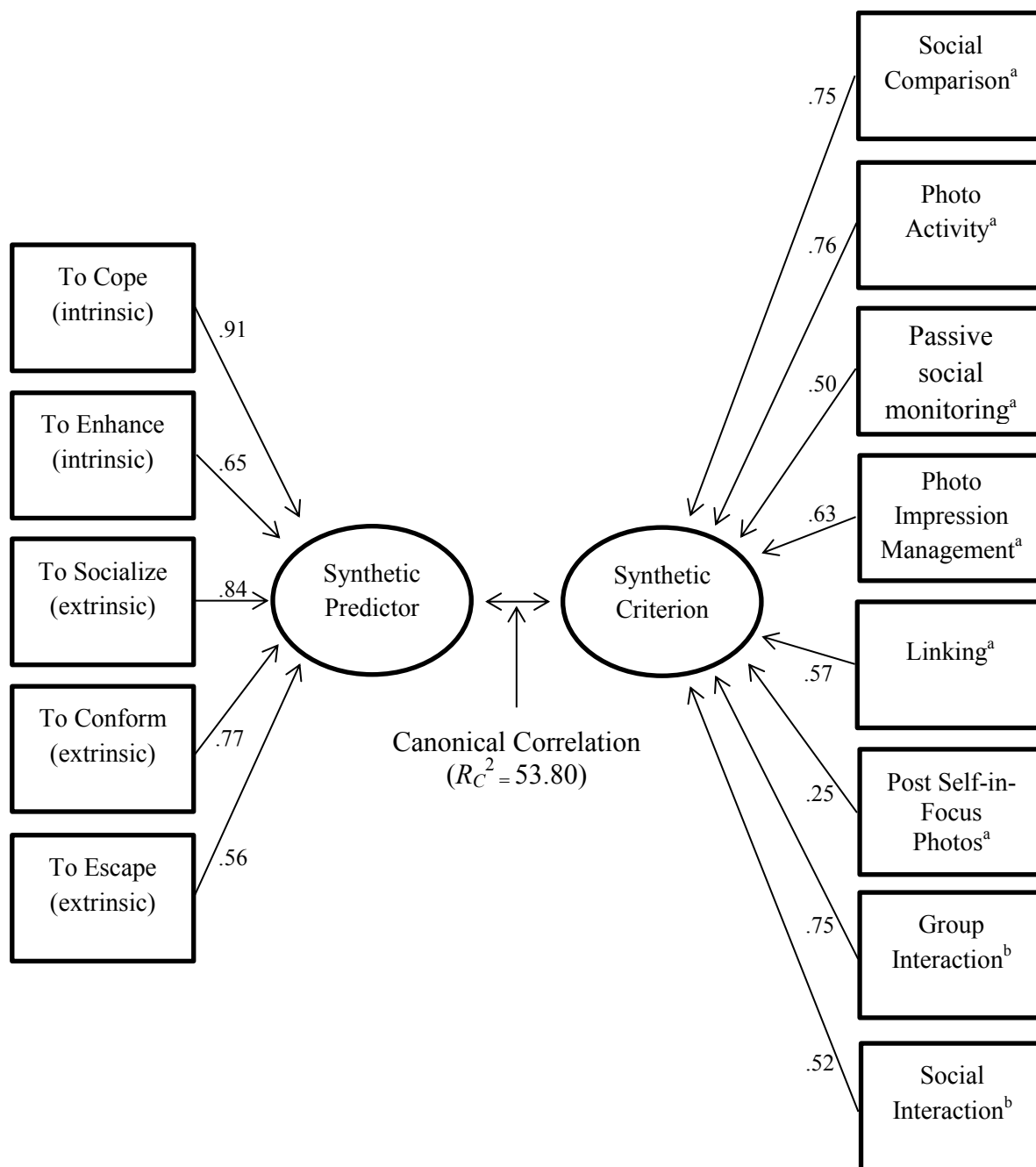
Figure 3. Graphical depiction of first canonical function, "Common Facebook Engagement"

Step five involved repeating the first four steps with other interpretable (i.e., those that explain a significant amount of variance in the observed variable sets) functions. For Function 2, none of the five motivations were excellent (i.e., structure coefficient in excess of .71; Comrey & Lee, 1992) independent contributors to the Facebook motivation synthetic variable as all five, independently, explained less than 50% of the variance in the synthetic predictor variable. Regarding relevant Facebook activities in Function 2, structure coefficients indicated that the non-communicative Facebook activity of passive social monitoring ($r_s = .79$) was an excellent independent contributor to the synthetic criterion variable, and explained approximately 62% of the synthetic criterion variable. As such, I labeled Function 2 "Passive Social Monitoring" to emphasize the fact that Function 2 primarily described a type of non-communicative activity observed among this college student sample in which users seek and view the news feed as well as other users' profile information (e.g., the "About" page), timelines, and photos. See Figure 4 for a graphical depiction of the second canonical function, regardless of structure coefficient value.
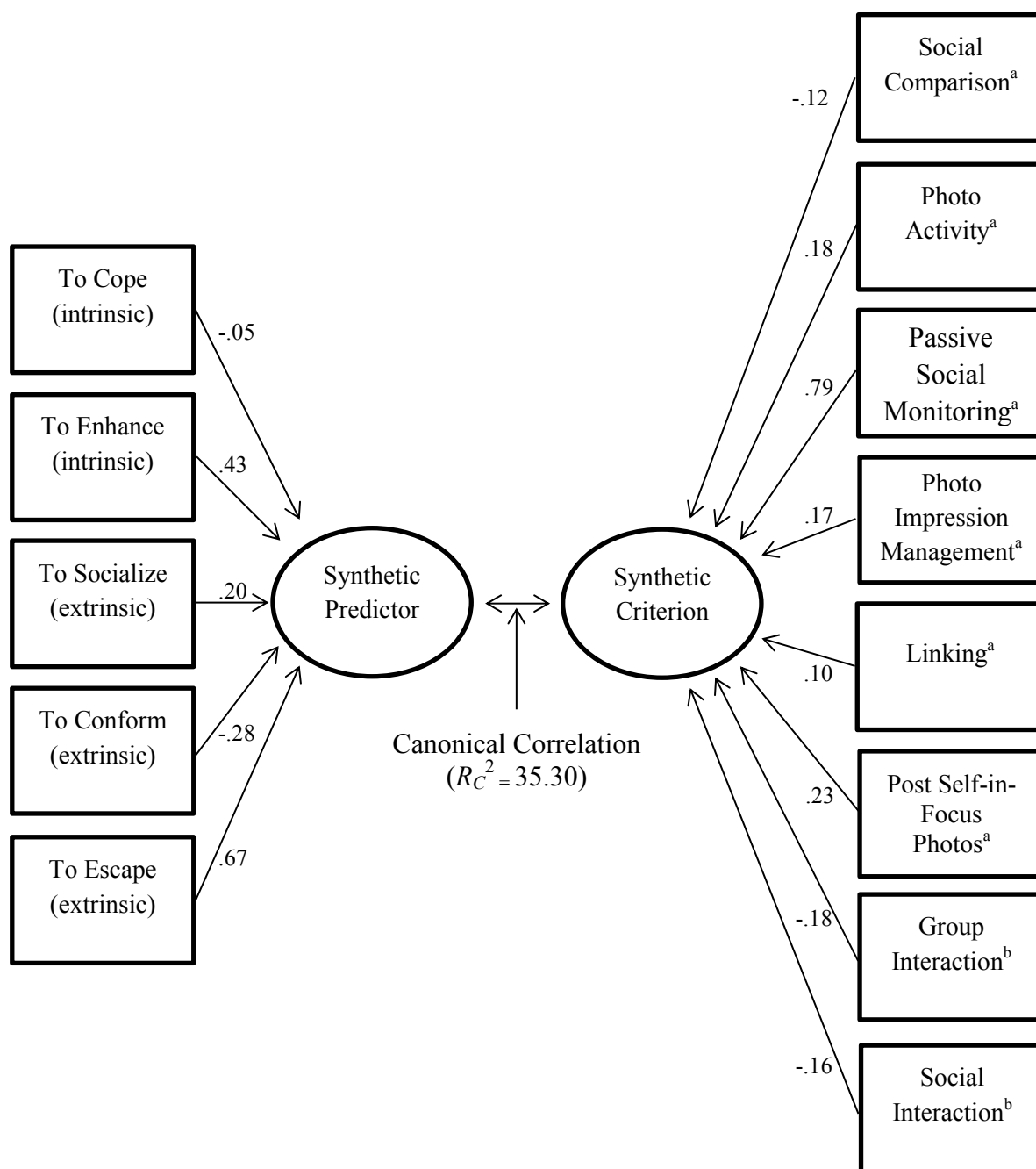
Figure 4. Graphical depiction of second canonical function, "Passive Social Monitoring."

Facebook Engagement on Interpersonal and Intrapersonal Functioning

My fourth research question was: Are significant correlates (i.e., as determined through canonical correlation) of Facebook activities and Facebook motivations associated with maladaptive and adaptive factors of interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning? I had no hypotheses for this research question because it was exploratory in nature. I addressed this research question by taking the significant canonical variates and using them as my independent variables in one SMR and four HMRs. I obtained canonical variate scores (i.e., the score on a canonical variate if it could be assessed directly) by the procedures described by Thompson (1991). I multiplied the contributing variables' (i.e., those with structure coefficients greater than .71; Comrey & Lee, 1992) standardized canonical coefficient by the participants' raw scores on that variable. These products were then summed to yield the canonical variate scores for each participant.

I addressed my fourth and final research question by performing five separate regression analyses; that is, each of the five DVs was tested separately. As a result of the primary analyses, I performed HMR due to significant associations between demographic variables and a DV. Step 2 for all four HMRs (i.e., social connectedness, loneliness, life satisfaction, conscientiousness) included the canonical variate scores (i.e., Function 1, Common Facebook Engagement; Function 2, Passive Social Monitoring) identified by the CCA. These same IVs were used in the SMR for identity distress. Step 1 for all four HMRs included one demographic and background variable, either number of Facebook friends (i.e., social connectedness, life-satisfaction, loneliness) or number of hours online per day (i.e., conscientiousness).

Adaptive interpersonal functioning: Social connectedness. I performed HMR

to identify how much variance in social connectedness was accounted for by the

identified canonical variates (i.e., common Facebook engagement, passive social

monitoring) after accounting for the variance explained by demographic variables. Table

18 displays the change in R^2 (ΔR^2) after steps 1 and 2, the standardized regression

coefficients (β), and total R^2. The squared semi-partial correlations (sr^2) which indicates

the unique contribution of each individual variable can be found in Table 23 (p. 117). R

was significantly different from zero at the end of each step. After step 2, with all IVs in

the equation, $R = .22$, $F(3, 204) = 3.47$, $p = .017$, and explained 5% of the total variance

in social connectedness. After step 1, with number of Facebook friends in the equation,

$R^2 = .02$, $F(1, 204) = 4.06$, $p = .045$, and explained 2% of the total variance in social

connectedness. Number of Facebook friends was significantly and positively associated

with social connectedness in step 1. After step 2, passive social monitoring was

significantly and positively associated with social connectedness, $\Delta R^2 = .03$, $F_{inc}(3, 204)$

$= 3.13$, $p = .046$.

Table 18. *Summary of Canonical Variates Predicting Social Connectedness*

Variable	ΔR^2	β
Step 1	.02*	
Number of Facebook friends[a]		.14*
Step 2	.03*	
Number of Facebook friends[a]		.13
Common Facebook engagement		-.13
Passive social monitoring		.16*
Total R^2	.05*	
N	208	

Note. [a] = Demographic and background variable; *p < .05; **p < .01; ***p < .001

Adaptive intrapersonal functioning: Life-satisfaction. I performed HMR to

identify how much variance in life-satisfaction was accounted for by the identified

canonical variates (i.e., common Facebook engagement, passive social monitoring) after

accounting for the variance explained by demographic variables. Table 19 displays the

change in R^2 (ΔR^2) after steps 1 and 2, the standardized regression coefficients (β), and

total R^2. The squared semi-partial correlations (sr^2) which indicates the unique

contribution of each individual variable can be found in Table 23 (p. 117). R was

significantly different from zero at the end of each step. After step 2, with all IVs in the

equation, $R = .30$, $F(3, 204) = 6.84$, $p < .001$, and explained 9% of the total variance in

life-satisfaction. After step 1, with number of Facebook friends in the equation, $R^2 = .06$,

$F(1, 204) = 13.98$, $p < .001$, and explained 6% of the total variance in life-satisfaction.

Number of Facebook friends was significantly and positively associated with life-

satisfaction. After step 2, number of Facebook friends and passive social monitoring were

significantly and positively associated with life-satisfaction, $\Delta R^2 = .03$, $F_{inc}(3, 204) =$

3.12, $p = .046$.

Table 19. *Summary of Canonical Variates Predicting Life-satisfaction*

Variable	ΔR^2	β
Step 1	.06***	
Number of Facebook friends[a]		.25***
Step 2	.03*	
Number of Facebook friends[a]		.24**
Common Facebook engagement		.00
Passive social monitoring		.17*
Total R^2	.09*	
N	208	

Note. [a] = Demographic and background variable; *p < .05; **p < .01; ***p < .001

Maladaptive interpersonal functioning: Loneliness. I performed HMR to identify how much variance in loneliness was accounted for by the identified canonical variates (i.e., common Facebook engagement, passive social monitoring) after accounting for the variance explained by demographic variables. Table 20 displays the change in R^2 (ΔR^2) after steps 1 and 2, the standardized regression coefficients (β), and total R^2. The squared semi-partial correlations (sr^2) which indicates the unique contribution of each individual variable can be found in Table 23 (p. 117). R was significantly different from zero at the end of step 1. After step 2, with all IVs in the equation, $R = .21$, $F(3, 204) = 3.20$, $p = .024$, and explained 5% of the total variance in loneliness. After step 1, with number of Facebook friends in the equation, $R^2 = .04$, $F(1, 204) = 9.28$, $p = .003$, and explained 4% of the total variance in loneliness. Number of Facebook friends was significantly and negatively associated with loneliness. After step 2, adding the canonical variates did not significantly improve the explained variance in loneliness, $\Delta R^2 = .00$, $F_{inc}(3, 204) = .20$, $p = .822$.

Table 20. *Summary of Canonical Variates Predicting Loneliness*

Variable	ΔR^2	β
Step 1	.04**	
Number of Facebook friends[a]		-.21**
Step 2	.00	
Number of Facebook friends[a]		-.20**
Common Facebook engagement		.01
Passive social monitoring		-.05
Total R^2	.04	
N	208	

Note. [a] = Demographic and background variable; *p < .05; **p < .01; ***p < .001

Maladaptive intrapersonal functioning: Identity distress. I performed SMR to identify how much variance in social connectedness was accounted for by the identified canonical variates (Table 21). Thus, the SMR included the two canonical variates (i.e., common Facebook engagement, passive social monitoring) as my IVs and identity distress as my DV. The overall regression, including both predictors, was not statistically significant, $R = .15$, $R^2 = .02$, adjusted $R^2 = .01$, $F(2, 205) = 2.22$, $p = .111$. Identity distress was not significantly associated with this set of variables.

Table 21. *Summary of Canonical Variates Predicting Identity Distress*

Variable	B	SE B	β	sr^2
Canonical Variates				
Common Facebook Engagement	.26	.13	.15*	.02
Passive Social Monitoring	-.30	.70	-.03	.00

Note. *p < .05

Conscientiousness. I performed HMR to identify how much variance in conscientiousness was accounted for by the identified canonical variates (i.e., common Facebook engagement, passive social monitoring) after accounting for the variance explained by demographic variables. Although I made no hypotheses regarding this DV, it was included following the proposal meeting as per my committee's recommendations and the findings were of interest. Table 22 displays the change in R^2 (ΔR^2) after steps 1 and 2, the standardized regression coefficients (β), and total R^2. The squared semi-partial correlations (sr^2) which indicates the unique contribution of each individual variable can be found in Table 23 (p. 117). R was significantly different from zero at the end of step 1. After step 2, with all IVs in the equation, $R = .19$, $F(3, 204) = 2.51$, $p = .018$, and explained 5% of the total variance in conscientiousness. After step 1, with number of

Facebook friends in the equation, $R^2 = 03$, $F(1, 204) = 6.55$, $p = .011$, and explained 3% of the total variance in conscientiousness. Number of hours online was significantly and negatively associated with conscientiousness. After step 2, adding the canonical variates did not significantly improve the explained variance in conscientiousness, $\Delta R^2 = .01$, F_{inc} (3, 204) = .51, $p = .604$.

Table 22. *Summary of Canonical Variates Predicting Conscientiousness*

Variable	ΔR^2	β
Step 1	.03*	
Number of hours online per day[a]		-.18*
Step 2	.01	
Number of hours online per day[a]		-.17*
Common Facebook engagement		-.05
Passive social monitoring		-.03
Total R^2	.04	
N	208	

Note. [a] = Demographic and background variable; *p < .05; **p < .01; ***p < .001

The canonical variates contributed to the variance in adaptive interpersonal and intrapersonal functioning (i.e., social connectedness, life-satisfaction) after accounting for the variance explained by the demographic variable. For all other HMRs (i.e., loneliness, and conscientiousness) the variance explained by the canonical variates was not statistically different than the variance explained by the demographic variable. For the SMR, the canonical variates were not significantly associated with identity distress. Although common Facebook engagement was significantly and positively associated with identity distress, the variance explained by the canonical variates was not statistically significant.

Table 23. Combined Regression Results for Canonical Variates on DVs

		Adaptive Functioning				Maladaptive Functioning					
		Social Connectedness		Life-Satisfaction		Loneliness		Identity Distress		Conscientiousness	
Variable		B	sr^2	β	sr^2	β	sr^2	β	sr^2	β	sr^2
Demographic Variable											
# of Facebook friends	(step 1)	.14*	.02	.25***	.06	-.21**	.04	-	-	-	-
	(step 2)	.13	.02	.24**	.05	-.20**	.04	-	-	-	-
# of hours online per day	(step 1)	-	-	-	-	-	-	-	-	-.18*	.03
	(step 2)	-	-	-	-	-	-	-	-	-.17*	.03
Canonical Variates											
Common Facebook Engagement		-.13	.02	.00	.00	.01	.00	.15*	.02	-.05	.01
Passive Social Monitoring		.16*	.02	.17*	.03	-.05	.00	-.03	.00	-.03	.01
R^2	(step 1)	.02*		.06***		.04**		.02		.03*	
ΔR^2	(step 2)	.03*		.03*		.00		-		.01	

Note. *p < .05; **p < .01; ***p < .001.

CHAPTER V. DISCUSSION

The present study's purpose was to assess how the combination of Facebook activities and, particularly, underlying Facebook motivations were associated with maladaptive and adaptive factors of college students' interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning. An overwhelming majority of college students spend many hours logged in to Facebook each day, yet most of the previous empirical investigations focused on college students' Facebook use have included unidimensional approaches to operationalizing Facebook use (e.g., hours on Facebook, activities engaged). As Facebook has become an immensely popular venue for connecting users to information and to each other, it is important that counseling psychologists gain insight into how the various facets of Facebook engagement (e.g., multiple activities and, particularly, motivations) may be connected with interpersonal and intrapersonal functioning.

To achieve my purpose, I surveyed 208 college students regarding their self-reported Facebook activities, their underlying motivations in using Facebook, and their levels of interpersonal (i.e., loneliness and social connectedness) and intrapersonal (i.e., identity distress and life-satisfaction) functioning. I used HMR, SMR, and CCA to answer four research questions and to test the associated hypotheses. My first two hypotheses regarding associations between communicative Facebook activities (i.e., group interaction, social interaction) and adaptive and maladaptive interpersonal and

intrapersonal functioning were not supported. My second two hypotheses regarding associations between intrinsic and extrinsic motivations and adaptive and maladaptive interpersonal and intrapersonal functioning were partially supported. Additionally, I explored for possible relationships between Facebook activities and Facebook motivations to better understand how college students engage with the Facebook website. Finally, I assessed how those relationships between Facebook activities and Facebook motivations were associated with maladaptive and adaptive interpersonal (i.e., loneliness, social connectedness) and intrapersonal (i.e., identity distress, life-satisfaction) functioning.

In this chapter, I first review the present study's primary findings including the results from the hypotheses testing. Next, I offer clinical implications of those findings. Then, I then review the limitations of the present study and offer suggestions for future research. Finally, I suggest how the present study has contributed to the literature and then provide an overall conclusion.

Primary Study Findings

Facebook Activities and Interpersonal and Intrapersonal Functioning

Communicative activities and interpersonal and intrapersonal functioning. I hypothesized (H1a) that communicative Facebook activities (e.g., group interaction, social interaction) would be positively associated with adaptive interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning. In contrast, I hypothesized (H1b) that communicative Facebook activities (e.g., group interaction, social interaction) would be negatively associated with maladaptive interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning. Hypotheses 1a and 1b

were not supported. The communicative Facebook activities (i.e., group interaction and social interaction) were not significantly associated with loneliness, social connectedness, identity distress, or life-satisfaction. Additionally, although I made no hypotheses regarding an association between communicative activities and conscientiousness, no significant relationship emerged.

My ideas regarding the lack of significant relationships between participants' Facebook communicative activities and their functioning are related to the possibility that a) individual Facebook activities may be related to functioning and that when considered more broadly (i.e., communicative as type of activity), as I have done, no relationship exists, b) regardless of functioning, college students commonly use communicative activities, and c) perhaps other communication mediums may be significantly related to functioning. I offer more detail about each idea below.

The non-significant findings were not anticipated, because previous theorists and researchers have connected communicative activities to adaptive and maladaptive measures of college student functioning. For the purposes of the present study, I used entire subscales (i.e., group and social interaction) to represent communicative activities. Group interaction (i.e., creating and responding to groups, invitations, or events) and social interaction (i.e., sending and reading private messages and timeline posts) may contain activities that, individually, associate with my measures of functioning and others that do not. Burke et al. (2010) found communicative activities (e.g., Facebook messages, Timeline posts) were negatively associated with loneliness and self-esteem. Mehdizadeh, (2010) found these same communicative activities to be positively associated with loneliness. And Junco (2012) found that some communicative Facebook activities (i.e.,

creating and responding to events, commenting on timeline posts) were positively associated with student engagement (i.e., mental and physical effort invested in academic activities), whereas others (i.e., sending Facebook messages) were negatively associated with the same construct. I did not assess the individual activities for potential significant relationships among the dependent variables. Although the internal consistencies of these subscales were found to be adequate, such a metric merely supports the idea that the individual activities occur together often enough so that they may describe a more broad type of activity as opposed to the idea that each activity would relate similarly to measures of functioning.

It is also possible that group and social interaction are activities so commonly utilized amongst this sample of college students that no significant pattern emerged when attempting to identify relationships with adaptive and maladaptive interpersonal and intrapersonal functioning. That is, college students' propensity for creating and responding to groups, invitations, or events, (i.e., group interaction) and sending and reading private messages and timeline posts (i.e., social interaction) may be entirely disconnected from their perceived interpersonal and intrapersonal functioning. That is, group and social interaction may be Facebook activities in which college students engage regardless of the extent to which they report experiencing loneliness or life satisfaction.

It is also possible that Facebook may be viewed as a superficial mode of communication and so not necessarily associated with functioning and college students may use communication mediums other than Facebook (e.g., face-to-face, telephone, text messaging) in ways that are related to interpersonal and intrapersonal functioning. Chickering and Reisser (1993) and Arnett (2000, 2004, 2006) posit that communication

among peers contributes to college students' development; however, they did not speculate how the communication should or does occur. In addition, Chickering (1969) began his work on college student development long before the development of the Internet let alone Facebook. Boon and Sinclair (2009) suggested that the structure and available activities offered through the Facebook website are more conducive to superficiality than to the development and maintenance of relationships and meaningful interaction. It is conceivable that college students view Facebook as somewhat of a social depository, a place in which social information (e.g., current romantic pairings among friends, current trends in film and literature) is documented, stored, and can be viewed at their leisure. This idea would be in contrast to college students viewing Facebook as a forum for meaningful communication and relationship development, or perhaps not considering it at all in this regard. So perhaps college students' Facebook communication is superficial and entirely unconnected to functioning and it is perhaps communication through other mediums (e.g., face-to-face, telephone, text messaging) that may connect to functioning.

Non-communicative activities and interpersonal and intrapersonal functioning. Although I did not hypothesize any associations between non-communicative Facebook activities and maladaptive and adaptive interpersonal and intrapersonal functioning, the results indicated that posting self-in-focus photos (i.e., "selfies"; defined as posting headshots and photos that do not emphasize the background or show themselves in action), linking (i.e., sharing or viewing links to videos or articles), and social comparison (i.e., looking at and reading others' relationship status, educational background, interests, and favorite music, TV, books or quotes) were associated with at

least one of the dependent variables. I discuss the significant associations between each of these three Facebook activities and the corresponding interpersonal and intrapersonal variables in the following paragraphs.

Posting self-in-focus photos. My ideas regarding the positive relationship between posting selfies and maladaptive functioning (i.e., loneliness and identity distress) and the negative relationship between posting selfies and adaptive functioning (i.e., social connectedness and life-satisfaction) are related to the possibility that college students who experience distress may be more likely to post a positive, visual portrayal of themselves in effort to solicit positive feedback from their peers. On the other hand, college students who are functioning well may not experience a similar need to post selfies as they may be less focused on soliciting Facebook likes and more focused on utilizing their discretionary time for enjoyable leisure activities. Mehdizadeh (2010) found that college students' Facebook self-presentation, including selfies, commonly emphasized positive attributes and Carmean and Morris (2014) randomly collected more than one thousand selfies and most conveyed positive affect. Therefore, it may be that college students who post positive selfies are doing so in an effort to counter their current maladaptive functioning. College students who post more selfies are likely to be experiencing more maladaptive functioning and the college students who post fewer selfies are likely to be experiencing more adaptive functioning. Because of the correlational research design, issues of causation cannot be considered, but the relationships highlight here is an indication for the need for further research in the area of selfies.

In terms of a theoretical connection to these selfie-related findings, Chickering and Reisser (1993) posited that college students develop interpersonal and intrapersonal competence by receiving feedback from others. This feedback is important for identity development (Chickering & Reisser, 1993; Arnett 2000) and the feedback must be internalized in order for it to contribute to identity development. Considering that college students typically post positive selfies on Facebook and that the current results indicate selfies are associated with more maladaptive functioning, it may be that selfies offer a possible misrepresentation of college students' actual affect and are an attempt to distance themselves and alter maladaptive interpersonal and intrapersonal functioning. Consistent with posting selfies that portray adaptive functioning, Wrammert (2014) found that college students expressed a desire for positive feedback and "likes" when posting selfies. Further, those college students reported that their mood increased and decreased, respectively, as they did and did not receive the comments and "likes" on their selfies. To speculate further, it is possible that college students experience maladaptive functioning, post a selfie indicative of adaptive functioning, receive positive feedback from peers, internalize the feedback, and then experience more adaptive functioning. However, because the present study was cross-sectional and correlational, such a direct and linear relationship cannot be assumed.

Linking. Posting and viewing links was negatively associated with loneliness and positively associated with life-satisfaction indicating that students may either need to be in a positive place to engage in linking or the process of linking may contribute to more life-satisfaction and less loneliness. It is conceivable that college students only view links that are of interest to them on some level. Perhaps students who report more life-

satisfaction and less loneliness have the free time and mental energy to engage in linking

(i.e., viewing or sharing external links to videos or articles) and, therefore, report more

linking. On the other hand, looking at fun or interesting videos or articles may lead to

college students feeling more positive about their own lives and relationships. The

loneliness scale I used in the present study focused on sharing viewpoints with and

feeling emotionally connected to friends, family, and romantic partners. If college

students are sharing a link to a fun and interesting video or article with others whom they

perceive to also be interested in the link's content, such a process would be consistent

with sharing viewpoints with and being connected to others. So, maybe feeling positive

about life and relationships provides the actual discretionary time to find an interesting

video or article. Or it could be that linking reminds college students that they feel positive

about their life and also that they are not lonely.

   Social comparison. Engaging in social comparison was negatively associated

with social connectedness indicating that Facebook social comparison may hinder rather

than foster a sense of connection with peers and that when students have a sense of

connection they may be less compelled to seek information about others. More

specifically, social comparison involves looking at friends' "About" section which

includes relationship statuses, educational backgrounds, work/career information,

interests, or favorite music, TV shows, books, and quotations. Because Mehdizadeh

(2010) found that college students' Facebook self-presentation commonly emphasized

positive attributes, it is likely that the information college students offer in the "About"

section is tailored to paint themselves in the most positive light. It is quite likely that

college students who spend a great deal of time engaging in social comparison are going

to feel somewhat disconnected from or may even experience a sense of feeling *less than* their peers when they immerse themselves in the overly positive information their peers opted to share on their public Facebook profiles. Alternatively, college students who do not engage in social comparison are not as exposed to the best versions of their friends, and may therefore have a more realistic impression of their own social connectedness.

Facebook Motivations and Interpersonal and Intrapersonal Functioning

Although it can be helpful to identify the Facebook activities in which college students engage, the present study's theoretical underpinnings suggest that motivations likely drive these activities (Deci & Ryan, 1985). Consistent with Self-Determination Theory of motivation (SDT; Deci & Ryan 1985; 1991; 1995; 2000; Ryan & Deci, 2000), Deci and Ryan believe these activities facilitate the connection between motivation and psychological needs of competence, autonomy, and relatedness (Deci & Ryan, 1985). More specifically, SDT posits that individuals are active agents motivated to grow and develop in effort to attain those psychological needs and are therefore motivated to initiate behaviors that will directly contribute to the attainment of them. My second research question specifically focused on these motivations.

Intrinsic motivations and interpersonal and intrapersonal functioning. I hypothesized (H2a) that intrinsic motivations for accessing Facebook (e.g., cope, enhance) would be positively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning and negatively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning. H2a was partially supported. The intrinsic Facebook motivation to enhance was positively associated with life-satisfaction, and negatively

associated with loneliness and identity distress. Additionally, although I made no hypotheses regarding an association between intrinsic and extrinsic motivations and conscientiousness, the motivation to cope was negatively associated with conscientiousness.

Motivation to enhance. My sense is that accessing Facebook to enhance existing positive affect (i.e., intrinsic motivation to enhance) was positively associated with life-satisfaction and negatively associated with loneliness and identity distress because the motivation to enhance existing affect necessitates college students having positive affect. If college students are accessing Facebook for enhancement purposes (i.e., because Facebook is fun, exciting, and provides an enjoyable experience) then it can be presumed that they recognize a positive interpersonal and intrapersonal emotional experience; that is, that they have *something to* enhance. In this case, the described results may indicate that college students use Facebook as a tool that further enhances their existing positive affect.

The college students who endorsed this Facebook motivation, more so than their peers who did not, also endorsed more life-satisfaction (i.e., feeling broadly content in life), less loneliness (i.e., sharing viewpoints with and feeling emotionally connected with friends, family, and romantic partners), and less identity distress (i.e., feeling distressed in regard to multiple areas of identity development such as sexual attraction, religion, career choice). That is, when college students feel good about life and are not experiencing loneliness or identity distress, they want to use Facebook because it is fun, exciting, and contributes to an overall positive experience. Additionally, when college students are using Facebook because it is fun and exciting they also report feeling good and

functioning well in their lives. These findings are consistent with Deatherage et al. (2014) who found the online motivation to enhance was negatively associated with perceived stress. When college students accessed the Internet to enhance their experiences they perceived less stress in their lives and vice versa; the less stress they were experiencing the more likely they were to access the Internet for enhancement purposes. Taken together, Facebook, and the Internet more broadly, may be effective enhancement tools for college student functioning. If college students are functioning well interpersonally and intrapersonally within their college environment, it makes sense that they would be intrinsically motivated to pursue interests, enjoyment, and inherent satisfaction through their behaviors (Ryan & Deci, 2000).

This described interpretation also makes sense in the context of SDT in that Deci and Ryan would suggest that behavior based on the intrinsic motivation to enhance existing positive affect and the associated processes will lead to further satisfaction of the three innate psychological needs of competence, autonomy, and relatedness (Deci & Ryan, 1985). The present results that are specific to the association between the intrinsic motivation to enhance and life-satisfaction are connected to the three innate psychological needs identified within SDT (Deci & Ryan, 1985; Ryan & Deci, 2000). Those needs are competence (i.e., the need to effectively control the outcome of behaviors and experience mastery within life domains), relatedness (i.e., the need to interact and associate with others while caring for and feeling connected to them), and autonomy (i.e., the need to be causal agents within one's own life and act in congruence with one's integrated self; Deci & Ryan, 1985; Ryan & Deci, 2000). Life-satisfaction is connected to all three innate needs as Ryan and Deci (2000) proposed in that satisfying

all three needs, individuals are more likely to experience wellness and a positive view of life. Specifically, life-satisfaction was assessed within the present study by addressing areas that broadly encapsulate college students' overall health and well-being. Moreover, it makes sense that the intrinsic motivation to enhance would be negatively associated with loneliness and identity distress because individuals who experience maladaptive interpersonal and intrapersonal functioning are unlikely to possess the prerequisite positive affect that would be the focus of enhancement. Specifically, as loneliness increases individuals are less likely to satisfy their need to interact and associate with others while caring for and feeling connected to them (i.e., relatedness). Furthermore, as identity distress increases college students are less likely to perceive themselves as competent and able to facilitate mastery within their life domains (i.e., competence) and are also unlikely to feel capable of acting congruently with their own integrated self (i.e., autonomy) because more identity distress in the present study suggests less knowledge of and integration with various aspects of an integrated self. When college students are intrinsically motivated to pursue interests, enjoyment, and inherent satisfaction through their behaviors, they are likely to satisfy the psychological needs of competence, autonomy, and relatedness (Deci & Ryan, 1985; 2000) and would, therefore, are more likely to report greater life-satisfaction and less loneliness and identity distress than their peers.

Interestingly, the enhancement motivation was not significantly associated with social connectedness which indicates that college students' attitudes regarding general connection to individuals are not related to being motivated to access Facebook because Facebook is fun, exciting, and contributes to an overall positive experience. Although I

considered social connectedness and loneliness to represent opposite extremes of interpersonal functioning, the scales I used in the present study vary slightly in regard to their respective emphases. The loneliness scale more directly addressed college students' specific relationships (e.g., "I wish I had a more satisfying romantic relationship", "I feel alone when I am with my family", and "I do not have any friends who understand me"), whereas the social connectedness scale assessed how individuals perceive themselves to connect with nondescript people (e.g., "I feel so distant from people", "I don't feel I participate with anyone or any group"). Clearly, Facebook provides direct connection to specific users, and, therefore, expressing less loneliness within specific relationships should relate to using Facebook to enhance those feelings. In assessing Ryan and Deci's (2000) description of relatedness, it becomes clear that lower scores on the loneliness scale are more closely connected to Deci and Ryan's relatedness than higher scores on the social connectedness measure. That is, relatedness is defined as the need to interact and associate with others while caring for and feeling connected to them. Therefore, this construct more closely mirrors perceptions of the quality of specific relationships as opposed to broader, non-descript people and the environment overall. However, as Chickering and Reisser (1993) suggest, college student life is inherently social and development occurs as a result of social interactions and how individuals think about those interactions. Therefore, college students expressing less social connectedness to their peers and environment are, as a result, unlikely to experience an underlying positive emotional experience which they can enhance. Chickering and Reisser (1993) theorize an absence of that social connection to their peers and environment would not be associated with adaptive interpersonal and intrapersonal functioning. In fact, in the present study

social connectedness was negatively associated with the motivation to use Facebook to conform to peer groups (see below). Therefore, college students who perceive themselves to be generally connected to their peers and environment are less likely to ascribe to intrinsic motivations which Deci and Ryan (1985; Ryan & Deci, 2000) theorize will lead to behaviors that are unlikely to satisfy the psychological needs of competence, autonomy, and relatedness.

Motivation to cope. Despite the intrinsic motivation to cope being a significant predictor of conscientiousness, the amount of variance explained by the addition of Facebook motivations and Facebook activities did not improve the amount of variance already described by the demographic and background variable (i.e., number of hours online per day) within the model. Further, because I made no hypotheses regarding the potential relationships between my IVs and conscientiousness and because adding those IVs did not yield significant results, my discussion of the negative association between the intrinsic motivation to cope and conscientiousness is brief.

I believe that intrinsically accessing Facebook to cope with negative affect was negatively associated with conscientiousness because college students who are fundamentally organized, goal-oriented, and dependable (i.e., conscientious) may be more likely to employ coping strategies beyond the confines of Facebook. The way in which the motivation to cope was assessed for the present study was through questions focused on active and avoidant emotion-focused coping (e.g., to forget my worries, because it helps me when I feel depressed or nervous). It is possible that college students' conscientiousness has a negative relationship with the intrinsic motivation to cope through Facebook because the more conscientious college students are, conceivably,

more likely to employ more problem-focused coping strategies. Furthermore, it is interesting that the number of hours online each day was the only identified demographic and background variable that emerged as significant in the preliminary analyses for conscientiousness. That is, it makes sense that conscientious college students would spend fewer hours online than their less organized and dependable peers. If these conscientious college students are spending fewer hours online each day it may be that they are either more efficient in their time online or are simply doing less online, which could include coping.

Extrinsic motivations on interpersonal and intrapersonal functioning. I hypothesized (H2b) that extrinsic motivations for accessing Facebook (e.g., socialize, conform) would be positively associated with maladaptive factors of interpersonal (i.e., loneliness) and intrapersonal (i.e., identity distress) functioning and negatively associated with adaptive factors of interpersonal (i.e., social connectedness) and intrapersonal (i.e., life-satisfaction) functioning. H2b was partially supported. The extrinsic Facebook motivation to conform was positively associated with identity distress and negatively associated with social connectedness.

Motivation to conform. I believe that extrinsically accessing Facebook to conform to perceived social group expectations was positively associated with identity distress and negatively associated with social connectedness because college students who are uncertain of themselves may be more extrinsically motivated to access Facebook to conform in effort to attain external satisfaction. In addition, college students who feel broadly connected to their peer group may be less likely to engage in behavior in effort to connect to that peer group. College students who endorsed more identity distress (i.e.,

feeling distressed in regard to multiple areas of identity development such as sexual attraction, religion, career choice) and less social connectedness (i.e., feeling generally connected to nonspecific peers) may accessed Facebook in effort to conform (i.e., wanting to fit in, avoid being teased for not being on Facebook, and be liked and included). That is, college students who are uncertain of themselves and feel less secure about their place in the world use Facebook to fit in with and feel connected to their peers. Conversely, students who are motivated to use Facebook to conform to peers may be likely to experience more identity distress and less social connectedness. This alternative direction of the association also makes sense in that the more college students who feel sure of themselves and connected with their peers may be less likely to engage in behaviors to conform to peers.

These findings can be viewed in light of the theory as Deci and Ryan (1985) would predict that college students who are extrinsically motivated to conform and comply to others' approval would be unlikely to satisfy their needs of competence, autonomy, and relatedness. The processes associated with that extrinsic motivation are contingent on external gratification (e.g., external rewards, approval from others) and less likely to include personal value, competence, or belief that a desired outcome (e.g., interest, enjoyment, inherent satisfaction) will result (Deci & Ryan, 1985; Niemiec & Ryan, 2000; Ryan & Deci, 2000). Specifically, as college students' identity distress increases they are less likely to perceive themselves as competent and able to facilitate mastery within their life domains (i.e., competence) and also less likely to feel capable of acting congruently with their own integrated self (i.e., autonomy). More identity distress in the present study suggests less knowledge of and integration with various aspects of

that integrated self. When college students are extrinsically motivated to engage in behavior in effort to conform to their peer group they are unlikely to satisfy the psychological needs of competence and autonomy (Deci & Ryan, 1985; 2000) and would therefore be more likely to report greater identity distress and less social connectedness.

Relationships between Facebook Motivations & Activities

Overall, the CCA findings indicated two sets of motivations and activities that appeared to represent Common Facebook Engagement and Passive Social Monitoring, respectively. More specifically, the first function was comprised of the intrinsic Facebook motivation to cope, the extrinsic motivations to socialize and conform, the non-communicative Facebook activities photo activity and social comparison, and the communicative Facebook activity group interaction. Results indicated these variables were excellent measures of the first function that I labeled Common Facebook Engagement. The second function was comprised of the non-communicative Facebook activity of passive social monitoring. Results indicated passive social monitoring was the only excellent measure of the second canonical function so I labeled the function after this single contributing variable.

Common Facebook Engagement. The Facebook motivations and activities that comprised the first function (i.e., Common Facebook Engagement) suggest that college students' Facebook engagement is broad and multidimensional. In addition, the relationships among their underlying motivations and chosen activities indicate that students are generally trying to alter a current emotional state as opposed to trying to enhance or maintain an existing emotional state. More specifically, the motivations that were excellent predictors of the first function (i.e., cope, socialize, conform) are all quite

focused on trying to alter an existing state as opposed to trying to maintain an existing one. For example, the intrinsic motivation to cope includes items such as "because it helps me when I feel depressed or nervous" (indicating an effort to alter those feelings), the extrinsic motivation to socialize includes items such as "to be sociable" (indicating they were not already being sociable), and the extrinsic motivation to conform includes items such as "so I won't feel left out" (indicating an effort to alter feelings of exclusion). In contrast, the motivations that did not contribute to this function (i.e., enhance and escape) are focused on trying to maintain an existing emotional state as opposed to trying to alter a current emotional state.

Also, the activities that were excellent predictors of the first function (i.e., social comparison, photo activity, and group interaction) are also focused on altering an existing state as opposed to maintaining an existing one. For example, the non-communicative activity of social comparison includes items related to reviewing information about their peers (e.g., indicating an effort to alter existing thoughts about a peer or to alter their relationship by discovering shared interests upon which they may be able to connect). The non-communicative activity of photo activity includes items such as tagging and untagging themselves in photos they do and do not want peers to associate with them (e.g., indicating an effort to alter their Facebook presentation). The communicative activity of group interaction includes items such as "creating groups" (e.g., indicating an effort to alter their associations with peers under a shared interest or experience). In contrast, the activities that did not predict this function are more focused on maintaining an existing state as opposed to trying to alter an existing one. For example, the non-communicative activity of photo impression management contains items related to

graphically editing profile pictures (e.g., indicating an effort to maintain their Facebook presentation). The communicative activity of social connection contains items such as "sending and reading private messages" (e.g., indicating an effort to maintain correspondence with peers). In summary, Common Facebook Engagement includes both intrinsic and extrinsic motivations and communicative and non-communicative activities; however, the overall similarity is that they all seem to indicate the sense that college students use Facebook to alter an existing mood than to maintain one.

Theoretically, motivations precipitate behavior (Deci & Ryan, 1985; Ryan & Deci, 2000), and therefore, despite my research design being clearly correlational I describe the associations between Facebook motivations and activities in a manner that reflects this directionality. Informed by SDT, college students who endorse what I termed 'Common Facebook Engagement' are using Facebook because they want to feel better emotionally (i.e., intrinsically to cope). They may think using Facebook will help them enjoy social gatherings and be more sociable (i.e., extrinsically to socialize), and it might help them fit in (i.e., extrinsically to conform). Because college students access Facebook for intrinsic (i.e., to cope) and extrinsic reasons (i.e., to socialize and conform), they engage in photo activity to tag and untag themselves in photos they do and do not want peers to associate with them and read and comment on photos to join in group discussions or convey similar attitudes. In addition, they engage in social comparison to look at friends' relationship statuses, educational backgrounds, work/career information, interests, or favorite music, TV shows, books, and quotations. This comparison process could possibly be used to identify specific areas of interests to which they can conform or maybe to include in face-to-face or Facebook-generated interactions; and they engage in

group interaction to create and respond to groups, invitations, or events in order to join in group interaction and maybe RSVP to an upcoming event.

Theoretically, the described motivations are connected to activities that may, on the surface, satisfy the needs identified on the item level; however, theory would suggest that it is not the activities that lead to desired effects. Deci and Ryan propose in their self-determination theory of motivation (Deci & Ryan, 1985) that extrinsically motivated behavior will not lead to satisfying the innate psychological needs (i.e., competence, autonomy, and relatedness). That is, because a majority of the motivations identified in Common Facebook Engagement are extrinsic in nature, college students who access Facebook in this manner are theoretically less likely to experience adaptive functioning than their peers who access Facebook with more intrinsic motivations.

Additionally, the intrinsic motivation to enhance, the extrinsic motivation to escape, the non-communicative activities passive social monitoring, photo impression management, linking, posting selfies, and the communicative activity social interaction were not statistically related to this first function, Common Facebook Engagement. It is nearly equally important to address the motivations and activities that were not identified as excellent measures of the function in effort to further differentiate this form of Facebook engagement from others. Deci and Ryan (Deci & Ryan, 1985; Ryan & Deci, 2000) might suggest that college students seem to use Facebook with extrinsic motivations in effort to alter their maladaptive interpersonal and intrapersonal levels of functioning instead of as a tool to maintain existing, adaptive levels of functioning. College students who endorsed the previously discussed intrinsic (i.e., to cope) and extrinsic motivations (i.e., socialize, conform) may want, simply put, to feel better and fit

in with others. As such, the motivations to enhance and escape do not directly relate to this mentality. That is, if college students want to feel better (i.e., alter their experience of maladaptive functioning), they are unlikely to have an existing positive emotional state in which to enhance. And if these students want to fit in (i.e., socialize with and conform to their peer groups), they may not be motivated to escape from that same peer group. College students with the previously discussed motivations who also endorse the previously discussed activities (i.e., photo activity, social comparison, group interaction) may consider the remaining activities less likely to achieve their preferred ends, if they consider them at all. College students may not believe that monitoring the News Feed and friends' profiles, photo albums, and Timeline posts (i.e., passive social monitoring), spending time selecting specific photos to edit and post (i.e., photo impression management), viewing or sharing external links to videos or articles (i.e., linking), posting selfies (i.e., self-in-focus photos), and sending private messages to specific friends (i.e., social interaction) will help them feel better and fit in with others. Connected with that belief might be a perceived disconnection between that Facebook engagement and the theoretical ideals to engage in behavior that is consistent with motivations to satisfy personal values, competence, and the drive to achieve the three psychological needs of all people (i.e., competence, autonomy, and relatedness; Deci & Ryan 1985).

Passive Social Monitoring. The Facebook activity of passive social monitoring was the only excellent measure of the second canonical function and that may be because passive social monitoring requires an amount of nonchalant and haphazard browsing through Facebook, whereas the other forms of engagement are more goal-oriented (e.g., sharing links, posting photos). When assessing for relationships among Facebook

motivations and activities, after accounting for the first canonical function (i.e., Common Facebook Engagement), the non-communicative activity passive social monitoring provided the best measure of the second canonical function. Because the entire canonical function was described by only one variable the interpretation is limited. The non-communicative activity of passive social monitoring contains the items "looking at or reading others' profiles", "looking at others' photo albums", "reading posts on others' timelines", and "reading the News Feed".

The primary difference between Common Facebook Engagement (function 1) and Passive Social Monitoring (function 2) is that the former indicates active interaction with the site whereas the latter indicates a more passive interaction approach. By endorsing the motivations and activities that lead to Common Facebook Engagement, college students need to be involved in the process. For example, they need to create groups, comment on photographs, and go to specific Facebook profiles to search for information. In contrast, by endorsing Passive Social Monitoring, college students need not be generating new information or sharing anything with their peers. They need only sit back and read or look at existing information. These two canonical functions highlight two disparate forms of Facebook engagement; one highlighting interactive engagement and the other highlighting passive engagement. Such differences may highlight a need for future research into what, if any, differences exist in individuals who more regularly choose one over another.

Common Facebook Engagement, Passive Social Monitoring, and Interpersonal and Intrapersonal Functioning

Although I made no hypotheses regarding an association between the canonical functions and the dependent variables, the results indicated that Common Facebook Engagement shared no significant relationships with the dependent variables. In contrast, Passive Social Monitoring was positively associated with social connectedness and life-satisfaction.

Common Facebook engagement. Common Facebook Engagement may not have contributed to any significant relationships with the DVs because although students may be motivated to use Facebook to alter their current state, that motivation and the associated activities may not actually be related to their functioning. It is possible that students' efforts to alter a current state are separate from their overall functioning. In the other direction, it may be that college students' existing levels of functioning have little if any bearing on what motivates them to engage with Facebook.

Passive social monitoring. Passive Social Monitoring may have emerged as positively associated with social connectedness and life-satisfaction because college students who experience adaptive interpersonal and intrapersonal functioning are likely to have the prerequisite mental energy and low stress to engage in non-discriminant Facebook browsing. Engaging in Passive Social Monitoring and seeing friends' profiles, pictures, and posts may remind college students that they feel connected to their peers and broadly satisfied with life. College students who engage in Passive Social Monitoring (i.e., monitoring the News Feed and friends' profiles, photo albums, and Timeline posts) may be on Facebook to simply pass time. Considering the broad identity development

tasks associated with college students and college life (e.g., Chickering & Reisser, 1993; Arnett, 2000), taking time to point and click through Facebook looking at friends' profiles, photo albums, and the News Feed could provide a welcomed solace from the challenges associated with college life. On the other hand, perhaps Passive Social Monitoring provides a reminder to college students that they are connected with their peers. College students who spend more time reviewing the News Feed may see posts from a great deal of their friends in a short period of time. Such an experience could serve to remind them of existing satisfying relationships and acquaintances. Furthermore, students who review friends' photo albums and Timeline posts may reveal forgotten memories and shared experiences that further solidify that these students are connected to peers and are broadly satisfied with life.

Passive Social Monitoring is related to, but separate from, the activity of social comparison. Whereas Passive Social Monitoring describes a more haphazard, uninvolved perusing of the news feed, friends' profiles, and friends' photo albums, social comparison describes more specific, investigative examining of friends' profile information. As previously described, social comparison was negatively associated with social connectedness. Perhaps it is the viewed material that is interpreted differently in each activity. Specifically, whereas Passive Social Monitoring of friends' posts and photos may remind students of their social connections, viewing selected interests and work information may remind students' of the differences between themselves and their peers.

Contributions to the Literature

The present study contributes to the Facebook literature primarily by extending the understanding of Facebook motivation and, secondarily, by simultaneously assessing

Facebook activities and the associations between Facebook engagement and college student maladaptive and adaptive functioning. In addition, and in contrast to past research, I developed my motivation-based hypotheses in connection with the Self-Determination Theory of motivation (SDT). I also assessed how Facebook motivations were associated with factors of overall functioning and how the relationships between Facebook motivations and activities were associated with maladaptive and adaptive functioning.

I used a more complex way of assessing both Facebook motivations and activities and their relationships with maladaptive and adaptive functioning. More specifically, I examined the relationships among intrinsic and extrinsic motivations and communicative and non-communicative activities and how those relationships were associated with maladaptive and adaptive factors of interpersonal and intrapersonal functioning. Prior to the present study, no known researchers had empirically examined how Facebook motivations and activities were related to each other and how those relationships were related to dependent variables. Previous researchers (e.g., Pempek et al., 2009) who assessed underlying Facebook motivations connected those motivations with certain Facebook activities and did not connect those motivations directly to overall functioning. Connecting motivations to maladaptive and adaptive factors of interpersonal and intrapersonal functioning can provide counseling psychologists with a clearer picture of students' Facebook engagement and how that engagement is related to interpersonal and intrapersonal functioning.

A benefit of the present study was my focus on the assessment of relationships between Facebook engagement (i.e., motivations and activities) with both maladaptive

and adaptive factors of functioning because my data could be interpreted in a manner that allowed for more complex relationships to emerge. For example, the present findings indicated that the Facebook motivation to enhance was negatively associated with maladaptive interpersonal and intrapersonal functioning, positively associated with adaptive intrapersonal functioning, and was not related to adaptive interpersonal functioning. Previous researchers (e.g., Heiberger & Harper, 2008; Junco, 2012; Park, Chung, & Lee, 2012; Pempek, Yermolayeva, & Calvert, 2009; Valenzuela, Park, & Kee, 2009) designed their empirical investigations to identify associations between Facebook variables and either maladaptive (e.g., narcissism, anxiousness, drug use) or adaptive (e.g., student engagement, relationship satisfaction) factors. Such designs are unable to account for the simultaneous presence of both maladaptive and adaptive factors in association with college student Facebook engagement.

Finally, in the present study I used the SDT theoretical framework to focus on and understand Facebook motivation as the central component for "why" college students use Facebook. Previous researchers were more commonly concerned with "the what" of Facebook use. And those researchers who did assess "the why" did not connect their design with theory. Deatherage et al. (2014) found that "the why" behind Internet use was more predictive of intrapersonal functioning than was "the what". Although the hypothesized results were only partially supported in the present study's findings regarding the relationships between intrinsic and extrinsic motivations and study variables, results from a theoretically-based research study provide consumers of the literature structure from which to interpret and apply those results.

Clinical Implications

The present findings have implications for counseling psychologists working in university counseling centers in terms of individual therapy and campus-wide outreach efforts. Individual therapy implications include counseling center intake procedures and topics for therapy. Outreach efforts could emphasize relationships between Facebook engagement and overall functioning for student audiences.

Counseling psychologists in university counseling centers could use the present findings by highlighting Facebook motivation as much as possible when designing intake protocols, recognizing the importance of Facebook in college students' daily lives, and perhaps even using it as a tool for intervention. With regard to intake protocols, the present findings clearly indicate rationale for assessing Facebook behavior and activities, but central to the contribution of the present study is the suggestion that counseling psychologists should move beyond a typical assessment of Facebook behavior and activities and should assess college students' underlying motivation for accessing Facebook in the first place. Such assessments could be included in intake interviews, psychological assessments, and biopsychosocial history reports. In this regard, it would be beneficial for counseling psychologists who are not engaged with Facebook to educate themselves in the utility of the site. That is, counseling psychologists can be more informed in the areas of assessment and exploration of college students' Facebook engagement if they, themselves, are well-versed in the website. The results from the present study could support counseling psychologists asking their college student clients some questions specific to their Facebook engagement. For example, what are you hoping to achieve through being on Facebook? What is it about Facebook that you enjoy?

How is Facebook associated with your experience as a college student? What do you notice about yourself and your environment when you tend to take and post selfies? What do you get out of posting selfies? What do you notice about yourself and your environment when you share links with friends? What do you get out of sharing links? What is your involvement with Facebook groups? What's your experience like when reading your friends' 'About' sections?

In addition, counseling psychologists can remain open to discussing college students' Facebook motivation on a more nuanced level all throughout the therapeutic process. Facebook engagement also needs to be viewed broadly to include specific motivations and activities as certain motivations and activities were associated with interpersonal and intrapersonal functioning. The first piece of Facebook engagement counseling psychologists need be knowledgeable is that of college students' underlying motivations for accessing the website. For example, the extrinsic motivation to conform was negatively associated with adaptive functioning (i.e., social connectedness) and positively associated with maladaptive functioning (i.e., identity distress). Therefore, counseling psychologists with a more nuanced understanding of how Facebook engagement associates with college student functioning may be better able to identify an underlying motivation to conform through Facebook which can lead to more targeted conversation about that engagement. One such area for that conversation may be to work with college students in exploring conformity as a general process and the associated pros and cons of successful or unsuccessful satisfaction of this motivation. Another example of a clinical implication given the results from the present study has to do with using Facebook in effort to enhance positive affect. This motivation was the best marker for

adaptive college student functioning within the present study. Counseling psychologists who are aware of the relationships between the intrinsic motivation to enhance existing positive affect and college student functioning may be able to rule out potential areas of distress if an assessment of Facebook engagement yields evidence that college students are using Facebook to enhance their college student experience.

Counseling psychologists also need be knowledgeable about certain Facebook activity related findings, beyond the underlying motivations. For example, the non-communicative activity of posting selfies was the best marker for maladaptive college student functioning within the present study as this activity was positively associated with maladaptive functioning (i.e., loneliness and identity distress) and negatively associated with adaptive functioning (i.e., social connectedness and life-satisfaction). Counseling psychologists who are aware of the relationships between posting selfies and college student functioning may be able to identify evidence for maladaptive functioning, even if it is outside clients' awareness. Although counseling psychologists are unlikely to specifically focus on the activity of posting selfies, research indicates that college students commonly post selfies that show positive affect and may do so in order to solicit positive feedback from their peers. In addition, the present findings suggest that this process is likely related to problematic functioning. What is not known is whether or not these college students are aware of the incongruence between their functioning and presented affect. Specifically, because we know that selfies are commonly used to acquire external validation from peers, counseling psychologists who assess Facebook engagement in a nuanced manner may be able to encourage self-exploration regarding the

potential ramifications of putting on a happy face for their peers when that behavior may or may not accurately represent their emotional state.

As initially mentioned with regard to the present selfie related findings, in order for this information to be explored within the therapeutic context, counseling psychologists first need to be open to discussing Facebook engagement on a more nuanced level. Clearly, a great deal of information from many life domains is acquired throughout the data-gathering and assessment phase; however, being open to revisiting Facebook throughout the therapeutic process can be especially helpful if an initial assessment of Facebook engagement (i.e., normative for a particular client) has already been completed.

Furthermore, it can be helpful for counseling psychologists to be aware that time spent discussing Facebook would be best devoted to a focus on motivations rather than Facebook activities. In fact, SDT would suggest that assessing activities is actually contraindicated because chosen activities are secondary to the underlying motivations. It may be important for counseling psychologists to assess beyond the surface level question of "What do you choose to do on Facebook?" The maladaptive functioning measures were most associated with the extrinsic motivation to conform. Whereas it may be more intuitive for college students to discuss their Facebook activities, the therapeutic discourse may benefit if counseling psychologists assess beyond activity to help college students connect their interpersonal and intrapersonal experience to their motivations. It is important for counseling psychologists to be aware of the results from the present study so that they may best consider how college students' Facebook engagement may be connected with their overall functioning.

Finally, counseling psychologists in university counseling centers could design university-wide outreach programming emphasizing the association between motivation and interpersonal and intrapersonal functioning to provide larger groups of undergraduates with useful information regarding Facebook engagement. Similar to the suggestions included in the previous paragraphs, talking directly about various aspects of Facebook engagement and how they relate to overall functioning with campus groups (e.g., incoming first-year students, students in transition) could generate much more discussion and self-exploration regarding Facebook engagement on university campuses. Specifically, placing emphasis on how "the why" of behavior as opposed to "the what" of behavior is more connected to interpersonal and interpersonal functioning may lead to more self-determined processes of behavior and, theoretically, promote competence, autonomy, and relatedness (Deci & Ryan, 1985; Ryan & Deci, 2000). That is, helping students understand that they are more likely to experience adaptive functioning as they are intrinsically motivated to access Facebook and more likely to experience maladaptive functioning as they are extrinsically motivated to access Facebook.

Limitations

The limitations of this study can be grouped into three categories including issues related to sampling, measurement, and research design. I review specific issues within each category.

Sampling

With regard to sampling, the limitations are primarily related to a difficulty in generalizing beyond a group of privileged, White majority, college students who attend a single, large university in the Midwestern United States. First, the sample was

demographically limited based on the institution population. Beyond the limitations established by the university population, international students were excluded from the final sample thus creating an entirely US-born sample. In addition, the majority of the sample was White women in their undergraduate sophomore or junior years. Underrepresented groups were also underrepresented in the final sample. Technology, and more specifically Facebook, is not as accessible to some groups of college students (e.g., Blacks, students from lower socioeconomic families) as it is to other groups of college students. Researchers (e.g., Hargittai, 2008; Harhittai & Litt, 2011; Junco, 2013a; 2013b; Muscanell & Guadagno, 2011) have demonstrated that different racial and ethnic groups have varying access to technology and also use that technology differently. However, the present study did not include enough diversity to explore this issue further. Therefore, the present findings likely only apply to majority student groups. I did not assess nontraditional students (e.g., military veterans, parents, married students) in the present study, and these nontraditional students' Facebook engagement may vary in how and why they access Facebook. Finally, the present study was designed to assess undergraduate college students' Facebook engagement. Whereas Chickering and Reisser (1993) provide substantial rationale for studying undergraduate college students as a unique group due to the unique environment and developmental tasks for these individuals, Arnett (2000) argues individuals between the ages of 18 and 29 experience similar transitional difficulties regardless of student status. However, I caution others in applying the results of the present study beyond traditional college students to include nontraditional college students as well as non-student populations.

The present study's results may also be biased by participants' self-selection into the study. That is, college students who chose to participate in the present study may have been fundamentally different from those did not choose to participate in this study. For example, those college students who chose to participate in the present study may consider Facebook to be more central to their collegiate and social experiences than those who chose to not participate.

Measurement

Measurement limitations are connected with the dearth of commonly used surveys to assess Facebook engagement, the reliance on self-report data, and the absence of data regarding college students' values in connection with motivation. I review these limitations in the following paragraphs.

Although I used the best measures available (i.e., established psychometric properties, breadth of areas assessed, connection to theory), Facebook is a relatively new website and the instruments available to assess Facebook engagement could address these constructs more comprehensively. That is, the measure I used to assess Facebook activity does not include all possible activities available in Facebook and even the areas that are assessed are not done so comprehensively. For example, the FAM does not include any questions regarding college students' use of Facebook games, and the selfies subscale did not include questions regarding the displayed affect in the selfie (i.e., an aspect of selfies that other researchers have assessed) or whether or not the individual in-focus took the picture him or herself or included others (i.e., common characteristics of selfies). Furthermore, some scores of the activity subscales displayed low reliabilities. However, I used it because it was the only existing scale in the literature that identified subscales,

which was necessary for my CCA. With regard to my assessment of motivation, I modified one measure (i.e., FMQ) that was originally designed to assess motivations to consume alcohol (e.g., Drinking Motives Questionnaire-Revised; Cooper, 1994). Researchers have not used the FMQ specifically to assess Facebook motivation, although it was used in an Internet context (Deatherage et al., 2014) and yielded psychometrically acceptable scores in the present study. In addition, I used just the escapism subscale from the Motivations for Facebook measure (Smock et al., 2011), which could create limitations because no researchers have used the subscale outside of the confines of the full measure, and therefore in the present study it is impossible to know if it functioned the same. And although I supplemented the FMQ with an additional subscale, not all motivations were assessed in the present study.

Additionally, the present study is limited due to its reliance on self-report data collection which researchers have criticized for its lack of accuracy. For example, researchers routinely report that between 85% and 99% of college students access Facebook (e.g., Hargittai, 2008; Jones & Fox, 2009; Junco, 2012; Matney & Borland, 2009) and that they average more than an hour and a half of use per day. However, considerable discrepancies exist between these self-reported hours and actually observed hours on Facebook. Specifically, Junco (2013a) found college students used Facebook for only 26 minutes a day, although they self-reported use of more than 2 hours a day. This prior research may suggest that college students may not be accurate in their assessment of their own Facebook engagement. However, the computer monitoring software used in the aforementioned study (i.e., Junco, 2013a) would not have been able to provide insight

into one of the present study's primary emphases on college students' motivations for accessing Facebook.

Although I used the SDT as my guide for studying motivation, the nuances associated with motivation are difficult to assess without collecting information pertaining to individual values. Deci and Ryan (2000) discuss the self-determination continuum from amotivation to intrinsic motivation in which individual motivations can be categorized differently depending on the intention and perceived locus of causality (e.g., impersonal, external, internal) for an individuals' behavior. It is possible that the way I assessed for motivation may not have provided a comprehensive assessment of the construct. Without knowing individuals' values it is difficult to determine which motivations are intrinsic and which are extrinsic.

Research Design

Methodological limitations exist including a correlational and cross-sectional design that does not allow for causal assumptions and my reliance on Canonical Correlation Analysis. I review these limitations in the following paragraphs.

The design of the present study was correlational and cross-sectional and did not allow for the determination of causal relationships between independent and dependent variables. As such, discussion for the present study's findings is limited to the directionality of relationships and the co-occurrence of variables rather than which variable predicted another. Because causality was not determined in the present study, error exists with regard to interpreting the results. Within the present study, it is unclear if the Facebook motivations and activities affected the college students' interpersonal and

intrapersonal functioning or if their interpersonal and intrapersonal functioning affected their Facebook motivations and activities.

Additionally, the present study is also limited with regard to my use of CCA as it is an exploratory, high level analysis. To date, no known study had previously examined how the relationships between Facebook motivations and activities are associated with college students' interpersonal and intrapersonal functioning. However, CCA is useful when the research question requires the assessment of relationships between variable sets. Although I used simultaneous and hierarchical multiple regression analyses to assess for each independent variable's unique contribution to the various dependent variables, researchers have argued that Type I error can occur when researchers conduct multiple analyses (e.g., Henson, 2000; Thompson, 1991). As such, CCA is useful in reducing the probability of committing Type I error and may also be best in capturing the complexity of human behavior in psychological research (Thompson, 1991; Sherry & Henson, 2005). Additionally, and in connection to sample size, the accepted rule of thumb is to collect data from at least 10 participants per independent variable included the model (Tabachnick & Fidell, 2007), although some (i.e., Barcikowski & Stevens, 1975) have recommended approximately 50 participants per independent variable.

Future Research

The present study has several implications for future research including recommendations related to sampling, measurement, and research design. These implications are discussed in the following paragraphs.

Sampling

Future researchers should seek more heterogeneous samples with regard to sex, age, racial/ethnic identity, and Facebook profile status. Research on digital inequalities has suggested that college students of different racial, ethnic, and socioeconomic groups have different access to technology. Further, those who do have access to technology use it differently. For example, Junco (2013a) found that Black college students were less likely than peers from other ethnic groups to engage in passive social monitoring and students from lower socioeconomic groups were less likely than their more privileged peers to engage in communicative Facebook activities. A more heterogeneous sample would allow for these differences to be identified and discussed. Also, future researchers could obtain data from college students who do not have an active Facebook account. Although researchers (e.g., Hargittai, 2008; Jones & Fox, 2009; Junco, 2012; Matney & Borland, 2009) routinely find that between 85% and 99% of college students do have an active Facebook account, other research on digital inequalities might indicate that these figures are not representative of the true Facebook usage among college students (e.g., Hargittai, 2010; Muscanell & Guadagno, 2011). Soliciting data collection from non-Facebook users could provide insight into whether or not non-users differ in meaningful ways from their peers with active Facebook accounts.

Perhaps one of the most interesting findings from the present study is related to the association found between posting selfies and the dependent variables. It could be beneficial to explore selfies more directly and complexly by assessing if types of selfies associate differently with maladaptive and adaptive factors of interpersonal and intrapersonal functioning. For example, are selfies that include another individual

associated with maladaptive and adaptive factors of interpersonal functioning? Are selfies

that display exaggerated affect (e.g., excitement, sadness) associated with maladaptive

and adaptive factors of interpersonal functioning? It may also be interesting to

differentiate between college students who post selfies to Facebook and college students

who take selfies but do not post to Facebook (e.g., text to friends, post to other SNS such

as Twitter, Snapchat, or Instagram). For example, do college students who post selfies to

Facebook differ in maladaptive and adaptive factors of interpersonal and intrapersonal

functioning from college students who text selfies to their friends (or post to other SNS

such as Twitter, Snapchat, or Instagram)? What motivations are associated with different

types of selfies (e.g., multiple people, posted to Facebook, texted to friends, family, or

romantic partners)? Does developmental level or demographic populations who post

selfies (e.g., high school students, emerging adults not in college, military veterans,

middle aged adults, elderly adults) differ in maladaptive and adaptive factors of

interpersonal and intrapersonal functioning?

Measurement

Future researchers should attempt to develop and use measures of Facebook

engagement that account for all possible Facebook activities and motivations, use more

objective measures of data collection, and assess for individuals' values and goals. A

quantitative and finite number of Facebook activities exist; therefore, designing and using

a comprehensive measure of the Facebook activities could help to streamline the

research. As identified within the present study's results a number of the activity

subscales produced low reliabilities within this sample, and therefore effort to develop

better assessment tools of Facebook activity could not only lead to more streamlined

research but also improve subscale reliabilities; however, the constant flux inherent in the Facebook website creates measurement difficulties as, depending on the extent of changes to the site from one version to the next, available Facebook activities can vary greatly. This external factor suggests that emphasis on motivation may even provide convenience to researchers as motivations can remain the same in the presence of an evolving SNS. However, it could be beneficial to identify more Facebook-specific motivations, such as the motivation to solicit likes or comments from friends. Although it may be difficult to collect objective data regarding college students' Facebook motivations, using computer monitoring software to collect data regarding the actual activities in which college students engage may provide more accurate information for empirical research and discussion. Finally, the entire construct of motivation is difficult to assess due to the nuances associated with it, researchers could benefit from assessing individuals' values and goals to provide insight into the extent to which motivations are internalized. Such information can assist in determining whether or not the behavior should, in theory, connect with adaptive interpersonal and intrapersonal functioning.

A potential challenge in addressing the best marker for maladaptive college student functioning, posting selfies, is the novelty of and variety within this category of photos. The term "selfie" was added to the Oxford online dictionary in August 2013 (Oxford Dictionaries, 2015), making it one of the newest, acknowledged words. Recently, emphasis has been placed on assessing selfies in the context of SNS engagement (e.g., Fox & Rooney, 2015); however, consistent with previous scholarly investigations within technological advances, selfies are being assessed in the context of maladaptive functioning (i.e., narcissism, psychopathy, self-objectification; Fox &

Rooney, 2015). It is important to note such a connection with maladaptive functioning was identified within the present study, even when opportunities for the variable to associate with adaptive factors of functioning were equally available. However, it is possible the a comprehensive assessment into the variety of categorical differences within a selfie (e.g., multiple people, posted to Facebook, texted to friends, family, or romantic partners, exaggerated affect) may lead to a more balanced understanding of how selfies may be connected to maladaptive and adaptive factors of college student interpersonal and intrapersonal functioning.

Another area for future research is in regard to the potential categorization of some type of Facebook engagement as a process or behavioral addiction (Hormes, Kearns, & Timko, 2014). Process or behavioral addiction is defined as any compulsive behavior that leads to impairment within the commonly assessed family, work, and social life domains despite significant consequences (Sussman, Lisha, & Griffiths, 2011). Although it is necessary to understand not only Facebook engagement but the concept of process or behavioral addiction more comprehensively prior to exploring connections among them, it would be beneficial to determine if different motivations or activities are more commonly associated with such severe life domain impairment in connection with problematic Facebook use.

Research Design

Future researchers should consider longitudinal and qualitative designs that allow for a more comprehensive examination of Facebook engagement on interpersonal and intrapersonal functioning. The cross-sectional design of the present study did not allow me to view the associations among primary study variables across time. Qualitative or

quantitative data from the same individuals across time may allow for a better understanding of how Facebook engagement and college student functioning shifts over time. For example, can the same activity stem from different motivations? Do college students have multiple motivations for posting selfies? Does Facebook engagement vary by mode of access point (i.e., mobile web applications on smartphones, computer labs, personal computers)?

Another area of potential future research is in areas not addressed in the present study. The present study's design intentionally assessed how college students' Facebook engagement associated with maladaptive and adaptive factors of interpersonal and intrapersonal functioning and, therefore, the results of the present study cannot suggest associations between the study variables and other variables not assessed. Potential areas for future research may include how attachment styles, college student achievement, or experiences of potentially traumatic and otherwise adverse life events, associate with Facebook engagement. Furthermore, what might be present (or missing) in the lives of college students who have differing motivations for using Facebook and/or use different components of Facebook? Do college students who report certain types of Facebook engagement differ on their psychological needs (e.g., acceptance, attachment, information, belonging, mattering)?

Conclusion

I examined undergraduate college students' Facebook engagement emphasizing motivation over activities and focused on how that engagement was associated with adaptive and maladaptive factors of interpersonal and intrapersonal functioning. Consistent with theory, the results of the present study generally suggest that

college students experience adaptive functioning as they are intrinsically motivated to access Facebook and experience maladaptive functioning as they are extrinsically motivated to access Facebook. More specifically, the intrinsic motivation to enhance (i.e., because Facebook is fun, exciting, and provides an enjoyable experience) was positively related to life-satisfaction and negatively associated with loneliness and identity distress, whereas the extrinsic motivation to conform (i.e., to be liked or fit in with a particular group or to not feel left out, ridiculed, or because friends pressure them to do so) was negatively related to social connectedness and positively related to identity distress. Counseling psychologists could assist college students in their interpersonal and intrapersonal functioning and help them achieve more adaptive functioning if they could help college students identify more intrinsic motivations for their behavior.

The results of the present study also suggest that, in regard to non-communicative Facebook activities, posting selfies was positively related to loneliness and identity distress and negatively related to social connectedness and life-satisfaction. In addition, social comparison (i.e., looking at friends' relationship statuses, educational backgrounds, work/career information, interests, or favorite music, TV shows, books, and quotations) was negatively related to social connectedness, and linking (i.e., viewing or sharing external links to videos or articles) was positively related to life-satisfaction and negatively related to loneliness. Although past researchers have indicated that communicative Facebook activities (e.g., private messages, Timeline posts) are positively associated with both desirable (i.e., student engagement, self-esteem) and undesirable variables (i.e., loneliness), the present findings indicated no significant relationships

between communicative Facebook activities and adaptive and maladaptive factors of interpersonal and intrapersonal functioning.

The work counseling psychologists do with college students could benefit from assessing their Facebook engagement beyond general use and activities to include underlying motivations at intake and throughout the therapeutic process. Additionally, college students could benefit from the development of outreach programming to more broadly disseminate information regarding the connection between motivations for accessing Facebook and interpersonal and intrapersonal functioning. As indicated by the present results, college students who access Facebook with underlying intrinsic motivations may also experience more adaptive interpersonal and intrapersonal functioning. Likewise, college students who endorse fewer intrinsic reasons for accessing Facebook may experience less adaptive interpersonal and intrapersonal functioning. Further, the results of the present study identified rough markers for both adaptive and maladaptive college student functioning. That is, the intrinsic motivation to use Facebook to enhance existing positive affect and the canonical variate Passive Social Monitoring were the best markers for adaptive college student functioning just as the extrinsic motivation to use Facebook to conform to group norms and the non-communicative activity of posting selfies were the best markers for maladaptive college student functioning within the present study. Also, the isolation of Passive Social Monitoring as the only excellent predictor of the second canonical function may indicate the need for much more research focused on the more passive type of Facebook engagement.

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APPENDICES

Appendix A. The Facebook Website

Facebook includes a conglomeration of a number of different elements in which users can choose to engage. Upon logging into the website, users are brought to the Facebook "News feed" which is essentially a home page where users can view a streaming Timeline of all friends' Facebook activities updated in real time. With a single click from the News feed, users can access their main profile page. The main profile page includes general information about the user (i.e., job, education, geographical location, hometown, and relationship status), photos and videos of the user, and recent interactions with other users; all of these options are clickable links where friends can observe more in depth information in each category. On the main profile page the user's "Timeline" is visible. The "Timeline" is a running stream of the user's updates to the main profile page, self-generated messages (previously referred to as "status updates") and messages from friends published for others to see. By clicking on the "About" link, users can observe more in depth information in each category presented on the main profile page (e.g., work, education, relationship status, contact information, religious and political views). Within the "About" page users can also view a particular friend's life history by year which includes the dates of life events (e.g., work and education, family and relationships, home and living, health and fitness, travel and experiences). Also on the "About" page is a list of favorite quotations, movies, television shows, music, books, photos, friends, and "likes." Liking is an option on Facebook that allows users to click a "like" button on any user's comments, pictures, life events, status updates, as well as a variety of profile pages for sports teams, restaurants, products, websites, movies, hobbies, businesses, and everything else imaginable to indicate that that user holds a positive

cognitive appraisal toward the posting or page; or put plainly: that they *like* it. Finally, groups to which the Facebook user belongs are also listed on this page. Any Facebook user can create a new group and invite members to join and establish whether it is an open or closed group (i.e., open to all Facebook users or closed to everyone but approved individuals). Group members can post on a shared page for on-going discussion and communicate with other members without posting to the users' wall. Groups can serve many different purposes including uniting members in a fancy-free manner (e.g., When I was your Age Pluto was a Planet, I go Out of my Way to Step on Crunchy Leaves) uniting members under common experiences (e.g., I Went to Private School, Class of 2004), uniting members under common interests (e.g., Chicago White Sox Fans), or uniting members from an offline committee or group in an online arena (e.g., ADEC Student Initiative Committee; International Psychology: APA Division 52). All users can choose to participate in as many or as few of these described areas of the website, and they can also choose which users have access to what information on the profile by personalizing their privacy settings (Facebook, 2013).

Users control the accessibility to their online information by customizing their privacy settings. Regardless of the amount of information users publish on the website, they can choose to deny access to all users within an entire network (e.g., Purdue University) or individual users (e.g., Scott Deatherage). These privacy settings allow individuals to limit access to any or all aspects of the website. Users can choose who has access to their published information, who can send them a friend request, and who can search for them through Facebook or Internet search engines such as Google and Yahoo!. Users can control what information is published on their Timeline. Users can choose to

allow Facebook Friends the ability to post on their Timeline (i.e., other generated

information), or limit these postings to only themselves (i.e., user generated information).

Users can also choose to be selective regarding what posts are published on their

Timeline if they wish to first approve material prior to it being published. Users can

control what or who is blocked from their page. Users can create a restricted list which

only allows individuals on this list to see information that the user posts as public. Users

can also choose to block individual users. According to the Facebook page "Once you

block someone, that person can no longer see things you post on your Timeline, tag you,

invite you to events or groups, start a conversation with you, or add you as a friend,"

(Facebook, 2013). Users can choose to block "app invites" (e.g., games) or event invites

from particular users, or choose to block all information from specific apps.

Users can choose to access various applications within the website. These

applications (called "apps") primarily take the form of games. Users can participate with,

and compete against, other users in a variety of games through Facebook including word

games, card games, and role playing games among others. Engaging with apps other than

games requires that the user share information with outside websites. For example, by

enabling the Pandora app users can add their Pandora listening activity to their Facebook

Timeline. Enabling the ESPN app lets users see what articles other friends who have

enabled the ESPN app are reading or what videos they are watching.

Finally, two other popular activities on the Facebook website are the private

messages and chat functions. Users can choose to send private messages to other users

which are not published to either person's Timeline. In this manner, individuals can share

information with one or more specific users without considering who else will have

access to the communication stream. If the recipient of a private message is currently not

logged in to Facebook, that user will receive a notification at the top of the Facebook

page that he or she has an unread message. If a recipient of a message is currently logged

in to Facebook and Facebook Chat, the message will appear in a separate chat window.

Users can choose to chat with their Facebook friends in real time using the chat option

which is always accessible on the bottom of every page throughout the Facebook website.

Selecting the chat banner opens a sidebar which includes friends' activities on the top,

and friends available for chat on the bottom. After selecting any friend, a separate

window appears which will include any history of previous private messages sent to or

from that particular friend. In a way, the Facebook Chat option is a way for users who are

simultaneously logged in to Facebook to share private messages with other users. In

addition to an online private message, users can also choose to add more friends to the

chat, start a video call, or share files with that user or users included in the chat. The

history of this communication can be found in either the private message section or the

chat section.

Appendix B. Demographic & Background Questionnaire

1. Age: __

2. Gender: __ Woman (1) __Man (2) __ Other (3) __ Prefer not to answer (4)

3. Race/Ethnicity (Select one or more):
        ____African American (1)
        ____Asian American (2)
        ____Caucasian/European American (not of Hispanic origin) (3)
        ____American Indian or Alaskan Native (4)
        ____Native Hawaiian or Other Pacific Islander (5)
        ____Latina/Latino American (6)
        ____Middle Eastern American (7)
        ____Biracial/Multiracial (Please specify: _____) (8)

4. I am a(n) _____.
        ____Domestic Student (1)
        ____International Student (National origin: _____) (2)

5. While at college I am approximately ____ miles from where I lived when I attended high school.

6. I am enrolled as a student at _____.
        ____Purdue University (1)
        ____ Saint Joseph's College (2)
        ____ Other (Please specify: _____) (3)

10. Current Student Status:
        ____ Full-time student (1)
        ____ Part-time student (2)
        ____ Non-student (3)

7. Sexual Orientation:
        ____Straight (1)
        ____Gay, Lesbian (2)
        ____Bisexual (3)
        ____Transgendered (4)
        ____Questioning (5)
        ____Prefer not to answer (6)

9. Current Relationship Status:
     Single (Please specify)
            ____ Not in a relationship (1)
            ____ In a relationship but not cohabitating (2)
            ____ Cohabitating (3)
        ____ Married (4)

_____ Divorced (5)
_____ Married and separated (6)
_____ Widowed (7)

8. Year in the University:
_____ First year undergraduate (1)
_____ Sophomore (2)
_____ Junior (3)
_____ Senior (4)
_____ Graduate Student (5)
_____ Other (Please specify: _____) (6)

11. I spend approximately ___ hours online each day.

13. My current Facebook account status is:
_____Active (1)
_____Temporarily Disabled (2)
_____Deactivated (3)
_____Never registered
_____Plan to register

14. I spend approximately ___ hours on Facebook each day.

16. Right now I have approximately ___ Facebook friends.

17. My Facebook relationship status is
___ ---
___Single
___In a relationship
___Engaged
___Married
___In a civil union
___In a domestic partnership
___In an open relationship
___It's complicated
___Separated
___Divorced
___Widowed

Appendix C. Social and Emotional Loneliness Scale for Adults—Short

Please indicate the degree of agreement or disagreement with each of the following statements.

1	2	3	4	5		6	7
Strongly Disagree			Neither				Strongly Agree

1. I feel alone when I am with my family.   1 2 3 4 5 6 7
2. I feel part of a group of friends.*   1 2 3 4 5 6 7
3. I have a romantic partner with whom I share
   my most intimate thoughts and feelings.*   1 2 3 4 5 6 7
4. There is no one in my family I can depend
   on for support and encouragement, but I
   wish there was.   1 2 3 4 5 6 7
5. My friends understand my motives and
   reasoning.*   1 2 3 4 5 6 7
6. I have a romantic or marital partner who
   gives me the support and encouragement I   1 2 3 4 5 6 7
   need.*
7. I don't have any friends who share my   1 2 3 4 5 6 7
   views, but I wish I did.   1 2 3 4 5 6 7
8. I feel close to my family.*   1 2 3 4 5 6 7
9. I am able to depend on my friends for help.*
10. I wish I had a more satisfying romantic   1 2 3 4 5 6 7
    relationship.   1 2 3 4 5 6 7
11. I feel part of my family.*   1 2 3 4 5 6 7
12. My family really cares about me.*
13. I do not have any friends who understand   1 2 3 4 5 6 7
    me, but I wish I did.
14. I have a romantic partner to whose   1 2 3 4 5 6 7
    happiness I contribute.*
15. I have an unmet need for a close romantic   1 2 3 4 5 6 7
    relationship.

Note. *Reverse coded

Appendix D. Social Connectedness Scale

Please indicate how much you agree or disagree with each of the following statements.

1	2	3	4	5	6

Strongly   Strongly
Agree   Disagree

1. I feel disconnected from the world around
   me.   1 2 3 4 5 6
2. Even around people I know, I don't feel
   that I really belong.   1 2 3 4 5 6
3. I feel so distant from people.   1 2 3 4 5 6
4. I have no sense of togetherness with my
   peers.   1 2 3 4 5 6
5. I don't feel related to anyone.   1 2 3 4 5 6
6. I catch myself losing all sense of
   connectedness with society.   1 2 3 4 5 6
7. Even among my friends, there is no sense
   of brotherhood/sisterhood.   1 2 3 4 5 6
8. I don't feel I participate with anyone or any
   group.   1 2 3 4 5 6

Appendix E. Identity Distress Scale

To what degree have you recently been upset, distressed, or worried over the following issues in your life?

1	2	3	4	5
Not at all	Mildly	Moderately	Severely	Very Severely

1. Long-term goals? (*e.g., finding a good job, being in a romantic relationship, etc.*)   1 2 3 4 5

2. Career choice? (*e.g., deciding on a trade or profession, etc.*)   1 2 3 4 5

3. Friendship? (*e.g., experiencing a loss of friends, change in friends, etc.*)   1 2 3 4 5

4. Sexual orientation and behavior? (*e.g., feeling confused about sexual attraction, intensity of sexual needs, etc.*)   1 2 3 4 5

5. Religion? (*e.g., stopped believing, changed your belief in God/religion, etc.*)   1 2 3 4 5

6. Values or beliefs? (*e.g., feeling confused about what is right or wrong, etc.*)   1 2 3 4 5

7. Group loyalties? (*e.g., belonging to a club, school group, gang, etc.*)   1 2 3 4 5

8. Please rate your overall level of _discomfort_ (how bad they made you feel) about all of the above issues that might have upset or distressed you <u>as a whole</u>.   1 2 3 4 5

9. Please rate how much uncertainty over these issues <u>as a whole</u> has interfered with your life (*e.g., stopped you from doing things you wanted to do, or being happy*).   1 2 3 4 5

10. How long (it at all) have you felt upset, distressed, or worried over these issues <u>as a whole</u>?
    ___Never, <1 month   ___1-3mos   ___3-6mos   ___6-12mos   ___12+ mos

Appendix F. Satisfaction with Life Scale

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item. Please be open and honest in your responding.

1	2	3	4	5	6	7

Strongly   Neither Agree   Strongly
Disagree   Nor Disagree   Agree

1. In most ways my life is close to my ideal.   1 2 3 4 5 6 7
2. The conditions of my life are excellent.
3. I am satisfied with my life.   1 2 3 4 5 6 7
4. So far I have gotten the important things I   1 2 3 4 5 6 7
   want in life.   1 2 3 4 5 6 7
5. If I could live my life over, I would change
   almost nothing.   1 2 3 4 5 6 7

Appendix G. Big Five Inventory (Conscientiousness Subscale)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please indicate the extent to which you agree or disagree with each statement.

I see myself as someone who...

1	2	3	4	5
Strongly Disagree		Neither Agree Nor Disagree		Strongly Agree

1. Does a thorough job.   1 2 3 4 5
2. Can be somewhat careless.*   1 2 3 4 5
3. Is a reliable worker.   1 2 3 4 5
4. Tends to be disorganized.*   1 2 3 4 5
5. Tends to be lazy.*   1 2 3 4 5
6. Perseveres until the task is finished.   1 2 3 4 5
7. Does things efficiently.   1 2 3 4 5
8. Makes plans and follows through with them.   1 2 3 4 5
9. Is easily distracted.*   1 2 3 4 5

Note. *Reverse coded

Appendix H. Facebook Activity Measure

Please answer the following questions regarding your main profile picture using a 5-point scale from 1 (*never*) to 5 (*always*).

1	2	3	4	5
Never	Rarely	Sometimes	Usually	Always

1. Is your picture of your face only a 'headshot'?*
2. How often do you use a portrait (i.e., background is hardly visible)?*
3. How often are your photos with family?
4. How often do your photos show a lot of the background and location?
5. How often do your photos show you in action (i.e., playing sports or working)?
6. How often are you posing like a model?
7. How often are you making faces (e.g., funny, cute, sexy, serious)?
8. Do you graphically edit your profile photos?
9. How often do you struggle to decide which picture to post?
10. Is it important that your photo makes you "look good"?

Using the same 5-point scale, how often do you engage in the following activities when you access Facebook?

11. Looking at or reading other people's profiles
12. Looking at others' photo albums
13. Posting photos
14. Tagging or untagging photos
15. Commenting on photos
16. Reading comments on photos of others
17. Reading comments on photos of yours
18. Reading posts on your Timeline
19. Reading posts on others' Timelines
20. Reading private messages from others
21. Sending private messages to others
22. Reading the News Feed
23. Looking at or interacting with groups (reading/posting posts)
24. Reading or responding to events or invitations
25. Creating events or invitations
26. Creating groups
27. Looking at links (e.g., YouTube) or video clips in other people's profile
28. Posting links (e.g., YouTube) or video clips in your profile
29. Looking at others' relationship status
30. Reading others' educational background

31. Reading others' work/career information
32. Reading others' interests or activities
33. Reading others' favorite music, TV, books, or quotes
34. Looking at the pages of relatives

Note. *Reverse coded

Appendix I. Facebook Motives Questionnaire

Please rate your propensity to access Facebook for the desired reason on a scale from 1-5.

1	2	3	4	5
Almost Never\				Almost Always\
Never				Always

I access Facebook…

1. To forget my worries
2. Because my friends pressure me to get on
   Facebook   1 2 3 4 5
3. Because it helps me enjoy a party
4. Because it helps me when I feel depressed   1 2 3 4 5
   or nervous   1 2 3 4 5
5. To be sociable
6. To cheer up when I am in a bad mood   1 2 3 4 5
7. Because I like the feeling   1 2 3 4 5
8. So that others won't kid me about not being   1 2 3 4 5
   on Facebook   1 2 3 4 5
9. Because it's exciting
10. To get a "rush"   1 2 3 4 5
11. Because it makes social gatherings more   1 2 3 4 5
    fun   1 2 3 4 5
12. To fit in with a group I like   1 2 3 4 5
13. Because it gives me a pleasant feeling   1 2 3 4 5
14. Because it improves parties and   1 2 3 4 5
    celebrations   1 2 3 4 5
15. Because I feel more self-confident and sure
    of myself   1 2 3 4 5
16. To celebrate a special occasion with friends   1 2 3 4 5
17. To forget about my problems   1 2 3 4 5
18. Because it's fun   1 2 3 4 5
19. To be liked   1 2 3 4 5
20. So I won't feel left out   1 2 3 4 5

Appendix J. Motives for Facebook Survey (Escapism Subscale)

Please rate the extent to which you agree with the following statements on a scale from 1-5.

1	2	3	4	5
Strongly Disagree				Strongly Agree

I am using Facebook…

Escapism
1. So I can forget about school, work, or other things   1 2 3 4 5
2. So I can get away from the rest of my family or others   1 2 3 4 5
3. So I can get away from what I'm doing   1 2 3 4 5

Appendix K. Purdue University Recruitment Email

Subject Line: Purdue study on college students' Facebook engagement – drawing for 10 $10 gift cards

Dear Purdue Student,

My name is Scott Deatherage. I am a graduate student in Counseling Psychology at Purdue University, and I am currently working on a research project (under the direction of my advisor Dr. Heather L. Servaty-Seib) with the purpose of exploring how college students engage with the Social Networking Website Facebook. This study is approved by Purdue University's Institutional Review Board.

This study will be conducted through an online survey and should take about 10 minutes to complete. Responses are anonymous, and you can skip any questions or leave the survey at any time. **Ten participants chosen at random will each win a $10 gift card to Amazon.com**. If you choose to participate in the drawing after completing the survey, you will be asked to send an email, entering you in a drawing to receive a gift card via email from Amazon.com.

In order to participate in this survey, you MUST be between the ages of 18 and 29 years old and be a fulltime, U.S. born, undergraduate student. If you would like to participate in this study please click on the link below.

(Link inserted here)

If you have any questions, please feel free to contact me at sdeather@purdue.edu or my advisor Dr. Heather Servaty-Seib at servaty@purdue.edu.

Thank you for your help,

Scott Deatherage
Counseling Psychology Doctoral Candidate
Purdue University

Appendix L. Information Letter

RESEARCH PARTICIPANT INFORMATION LETTER
College Students' Facebook Engagement
Heather L. Servaty-Seib, Ph.D.
Purdue University
Educational Studies

Purpose of Research
The purpose of the current study is to explore how college students engage with the Social Networking Website Facebook. For the purpose of this study, you must be a fulltime undergraduate student between the ages of 18 and 29 who was born in the United States.

Specific Procedures
The following online survey includes questions focused on background information, activities you access while on Facebook, your motivations for accessing Facebook, and your overall functioning. Please complete these forms and click the submit button upon completion.

Duration of Participation
This survey will take approximately 10-15 minutes to complete.

Risks
The risks involved in this study are no greater than that which is found in everyday life. It is possible you may experience some discomfort while filling out the survey. If you need personal assistance, you can contact a counselor near you by logging on to: www.purdue.edu/caps. If you need immediate assistance, you can receive support at the Lafayette Crisis Center by calling 1-765-742-0244, the USA National crisis hotline by calling 1-800-273-TALK, or by visiting http://suicidehotlines.com/national.html.

Benefits
There are no obvious personal benefits from participating in this study.

Compensation
If you choose, you will be directed to follow a link to a completely separate survey when you complete this form. By entering your email address into the separate survey, with no additional text, you will be entered into a drawing for an incentive. Ten email addresses will then be drawn from the pool of those who wish to be entered in the drawing. These eight individuals will each receive a $10 gift card to Amazon.com. The odds of the drawing will be no more than 1 out of 50. The individuals whose emails are drawn from the pool will be sent an email directly from Amazon.com with their gift card included.

Confidentiality
The privacy and confidentiality of your responses will be protected through multiple methods. You are not asked to provide your name or any identifying material other than

general demographic information. All completed forms will be kept secure in a computer database. Responses will be evaluated and presented collectively, rather than individually. The data will be kept indefinitely, but will only be used collectively for presentations or publications. Only the project team and College of Education IT department can access the data. However, the research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

Voluntary Nature of Participation
You do not have to participate in this research project. If you agree to participate, you can withdraw your participation at any time without penalty, and you can skip questions if you choose.

Contact Information
If you have any questions about this research project, you can contact either Heather L. Servaty-Seib at (765) 494-0837 or servaty@purdue.edu or Scott Deatherage at (219) 313-8468, sdeather@purdue.edu. If you have concerns about the treatment of research participants, you can contact the Institutional Review Board at Purdue University, Ernest C. Young Hall, Room 1032, 155 S. Grant St., West Lafayette, IN 47907-2114. The phone number for the Board is (765) 494-5942. The email address is irb@purdue.edu.

Appendix M. Purdue University Follow-Up Email

Subject Line: Purdue study on college students' Facebook engagement – drawing for 10 $10 gift cards

Dear Purdue University student,

My name is Scott Deatherage. I am emailing to follow up regarding an email I sent you last week about a study I am conducting. If you have completed the survey—thank you very much, and you need not read further. If you have not yet completed the survey, please consider taking part in my study.

I am a graduate student in Counseling Psychology at Purdue University, and I am currently working on a research project (under the direction of my advisor Dr. Heather L. Servaty-Seib) with the purpose of exploring how college students engage with the Social Networking Website Facebook. This study is approved by Purdue University's Institutional Review Board.

This study will be conducted through an online survey and should take about 10 minutes to complete. Responses are anonymous, and you can skip any questions or leave the survey at any time. **Ten participants chosen at random will each win a $10 gift card to Amazon.com**. If you choose to participate in the drawing after completing the survey, you will be asked to send an email, entering you in a drawing to receive a gift card via email from Amazon.com.

In order to participate in this survey, you MUST be between the ages of 18 and 29 years old and be a fulltime, U.S. born undergraduate student. If you would like to participate in this study please click on the link below.

(Link inserted here)

If you have any questions, please feel free to contact me at sdeather@purdue.edu or my advisor Dr. Heather Servaty-Seib at servaty@purdue.edu.

Thank you for your help,

Scott Deatherage
Counseling Psychology Doctoral Candidate
Purdue University

Appendix N. Preliminary Analyses (MANOVA Results)

The categorical demographic variables included gender, sexual orientation, race/ethnicity, year in school, relationship status, and employment status. Tabachnick and Fidell (2007) recommend at least 20 observations per cell for each dependent variable in MANOVA, whereas Warner (2013) states that, although it is preferable to have a larger sample size, MANOVA can be interpreted as long as more observations exist for each group than the number of dependent variables being analyzed. Because I have five dependent variables (i.e., loneliness, social connectedness, identity distress, life-satisfaction, and conscientiousness) I needed 100 observations for each MANOVA to satisfy Tabachnick and Fidell's (2007) recommendations. No demographic variables satisfied this recommendation. However, three variables were dichotomized to achieve adequate sample size to run and interpret MANOVA based on Tabachnick and Fidell's (2007) recommendations. The remaining three categorical demographic variables did not achieve Tabachnick and Fidell's (2007) recommended sample size after dichotomization, but MANOVAs were performed on these variables using Warner's (2013) guideline.

Gender, sexual orientation, and race\ethnicity could not be combined in a way that each group within these categorical variables possessed 100 observations but they did possess more observations than dependent variables used in the model.

In regard to gender, men ($n = 77$) and women ($n = 130$) scored significantly different on the dependent variables $F(1, 207) = 2.669$, $p = .004$, $\eta_p^2 = .062$. Men ($M = 43.53$, $SD = 14.85$) and women ($M = 39.54$, $SD = 13.62$) endorsed experiencing significantly different levels of loneliness $F(2, 205) = 4.827$, $p = .009$, $\eta_p^2 = .045$. Men ($M = 31.23$, $SD = 6.70$) and women ($M = 31.74$, $SD = 6.82$) endorsed experiencing significantly different levels of social-connectedness $F(2, 205) = 3.099$, $p = .047$, $\eta_p^2 =$

.029. Men ($M = 33.54$, $SD = 5.36$) and women ($M = 24.98$, $SD = 5.22$) endorsed experiencing significantly different levels of conscientiousness $F(2, 205) = 4.392$, $p = .014$, $\eta_p^2 = .041$. Men and women did not endorse significantly different levels of identity distress or life-satisfaction. In sum, men reported more loneliness, less social connectedness, and less conscientiousness than women.

In regard to sexual orientation, straight\heterosexual ($n = 190$), gay\lesbian ($n = 5$), and bisexual ($n = 8$) college students scored significantly different on the dependent variables $F(3, 200) = 2.287$, $p = .048$, $\eta_p^2 = .063$. Straight\heterosexual ($M = 40.60$, $SD = 14.36$), gay\lesbian ($M = 39.00$, $SD = 14.07$), and bisexual ($M = 54.88$, $SD = 11.68$) college students endorsed significantly different levels of loneliness $F(2, 200) = 3.900$, $p = .022$, $\eta_p^2 = .038$. Straight\heterosexual ($M = 31.78$, $SD = 6.76$), gay\lesbian ($M = 31.80$, $SD = 1.92$), and bisexual ($M = 25.63$, $SD = 9.55$) college students endorsed significantly different levels of social connectedness $F(2, 200) = 3.136$, $p = .046$, $\eta_p^2 = .030$. Straight\heterosexual, gay\lesbian, and bisexual college students did not endorse significantly different levels of identity distress, life-satisfaction, or conscientiousness. In sum, bisexual college students reported the most loneliness and least social connectedness when compared to their straight\heterosexual and gay\lesbian peers. Tukey's post-hoc analysis revealed that bisexual college students endorsed significantly higher levels of loneliness ($p = .017$) and significantly lower levels of social connectedness ($p = .035$) than their straight\heterosexual peers.

In regard to race\ethnicity, the final sample for the present study included participants who identified themselves as European American ($n = 175$), African American ($n = 4$), Asian American ($n = 7$), Latino American ($n = 10$), Middle Eastern

American ($n = 1$), biracial ($n = 9$), and other (n = 2). Because Warner (2013) recommends having more observations than dependent variables, I combined African American, Middle Eastern American, and other participants into a single group. Therefore, the MANOVA assessed for differences among five groups (i.e., European American\White, Asian American, Latino American, Biracial, and Other). The dependent variables did not vary significantly by race\ethnicity of the participants $F(6, 201) = 1.227$, $p = .189$, $\eta_p^2 = .036$

With regard to year in school, I created two groups: lower class students (i.e., first-year and sophomore students) and upper class students (i.e., junior and senior students). MANOVA results indicated an omnibus difference for year in school on the DVs did not emerge $F(1, 208) = .677$, p $= .641$, $\eta_p^2 = .016$.

With regard to relationship status, I created two groups: those who were in a relationship and those who were not in a relationship. The participants who selected "other" ($n = 4$) to describe their relationship status were removed from this analysis because I could not assume that these individuals were or were not involved in a romantic relationship. MANOVA results indicated an omnibus difference for relationship status on the DVs $F(1, 202) = 49.904$, $p < .001$, $\eta_p^2 = .558$. Individuals in a relationship ($M = 31.28$, $SD = 11.49$) and individuals not in a relationship ($M = 49.25$, $SD = 11.16$) scored significantly different on loneliness $F(1, 203) = 127.666$, $p < .001$, $\eta_p^2 = .387$. Individuals in a relationship ($M = 35.90$, $SD = 5.14$) and individuals not in a relationship ($M = 33.73$, $SD = 5.40$) also scored significantly different on conscientiousness $F(1, 203) = 8.538$, $p = .004$, $\eta_p^2 = .041$. They did not score significantly different on social connectedness $F(1, 203) = .615$, $p = .434$, $\eta_p^2 = .003$, identity distress $F(1, 203) = .059$, p

$= .808$, $\eta_p{}^2 = .000$, or life-satisfaction $F(1, 203) = .223$, $p = .638$, $\eta_p{}^2 = .001$.

With regard to employment status, I created two groups: those who were unemployed or not in the labor force and those who worked part-time or full-time. The participants who did not report their employment status ($n = 2$) were removed from this analysis because I could not assume these individuals were or were not employed. MANOVA results indicated an omnibus difference for employment status on the DVs did not emerge $F(1, 204) = 1.754$, $p < .124$, $\eta_p{}^2 = .042$.

VITA

VITA

Scott S. Deatherage
Department of Educational Studies, Purdue University

<u>Academic Background</u>
Ph.D. Counseling Psychology, Purdue University, West Lafayette, IN   2016
    Dissertation: "Facebook engagement on college students' interpersonal and
    intrapersonal functioning," Chair Heather Servaty-Seib, PhD, HSPP
    Internship: James H. Quillen VA Medical Center at Mountain Home

M.S.Ed School Counseling, Purdue University, West Lafayette, IN   2010

B.S. Psychology, Saint Joseph's College, Rensselaer, IN   2008

<u>Clinical Background</u>
Predoctoral Intern, James H. Quillen VA Medical Center   2015-2016
    Primary Care—Mental Health Integration
    Psychosocial Recovery & Treatment Program
    Geropsychology
    Outpatient Mental Health
    Mental Health Leadership, Management, & Administration
    Compensation & Pension Examinations

Clinician, US Naval Consolidated Brig, Charleston, SC
    Clinical Services   2014-2015

Director, Purdue University
    Purdue Counseling & Guidance Center   2012-2013

Clinician, Purdue University
    Therapeutic Assessment Clinic   2012
    Purdue Counseling & Guidance Center   2010-2011
    BRIDGe Bereavement Program   2009-2012

Clinician, Illiana VA Medical Center
    Substance Abuse & Rehabilitation Program   2012
    Posttraumatic Stress Disorder Clinic   2011-2012

School Counseling Intern

Klondike Elementary School	2010
Delphi Community Junior-Senior High School	2009-2010
Delphi Community Elementary School	2009
West Lafayette School Corporation	2008
Rensselaer School Corporation	2006

Outreach Background

Purdue University

Facilitator, Multicultural & Diversity Program	2011
Assessing College Students for At-Risk Behavior in non-clinical settings	2009

Research Background

James H. Quillen VA Medical Center

Assessment of Medical Center Diversity Patient Treatment Opportunities	2015-2016

Purdue University

Research Assistant, Research Integrity & Regulatory Affairs	2011-2012
Research Assistant, Journal of Purdue Undergraduate Research	2011-2012
Research Assistant, Purdue Libraries Information Literacy	2010-2011
Research Assistant, Low-income Family Resilience and Cohesion	2010-2011
Research Assistant, School of Engineering	2011
Research Assistant, School Counseling Serious Gaming	2010

Saint Joseph's College

Research Assistant, College Students' Sexual Attitudes, Beliefs, & Behaviors	2008
Research Assistant, Impact of Parental Expectations on Student's IQ	2007-2008

Publications

Deatherage, S., Servaty-Seib, H.L., & Aksoz, I. (2014). Stress, Coping, and Internet Use of College Students. *Journal of American College Health, 62*, 40-46.

Bracke, M., Weiner, S., Nixon, J. & **Deatherage, S.** (2012) Criteria for evaluating journals in the scholarship of teaching and learning in agriculture, natural resources, and the life sciences. *International Journal for the Scholarship of Teaching and Learning, 6* (2), 1-24.

Presentations

National and International

Wachter Morris, C. A., & **Deatherage, S.** (2009, October). *Suicide in the schools: Serious Gaming as a transformative pedagogical tool.* Presentation at the bi-annual conference of the Association for Counselor Education and Supervision, San Diego, CA.

Wachter Morris, C. A., & **Deatherage, S.** (2009, September). *Serious games as a pedagogical tool.* Presentation at the International Virtual Conference in Counseling &

Counselor Education. Presented from West Lafayette, IN in Second Life and streamed live internationally.

Regional

Deatherage, S. (2011, April). *Stress, coping, & the online behavior of bereaved college students*. Poster presentation at the Great Lakes Regional Conference. Indiana University, Bloomington, IN.

Local/Campus & Community Outreach

Deatherage, S. & Elder, M. (2016, April). *Identifying Veterans At-Risk for Self- and Other-Directed Violence in Allied Health Settings*. Guest presentation in Audiology Clinic. James H. Quillen Veterans Affairs Medical Center, Mountain Home, TN.

Deatherage, S. (2012, September). *Unique challenges of high ability college students in transition*. Guest presentation in EDCI 210: College of Education Scholarship Program. Purdue University, West Lafayette, IN.

Deatherage, S. & Long, S. (2011, November). *Living with PTSD: Information for caregivers*. Guest presentation at VA Caregivers' Lecture. Illiana Veterans Affairs Medical Center, Danville, IL.

Broustovetskaia, A. & **Deatherage, S.** (2011, October). *The importance of diversity awareness in multicultural settings*. Guest presentation in GS 197: Purdue Promise First-Year Experience Course. Purdue University, West Lafayette, IN.

Wachter, C. A.**, Deatherage, S.** (2010, March). *The social and emotional aspects of adolescents*. Guest presentation in EDPS 235: Learning and motivation (Honors). Purdue University, West Lafayette, IN.

Wachter, C. A.**, Deatherage, S.**, & Fitzpatrick, C. (2010, March). *The social and emotional aspects of school-aged children*. Guest presentation in EDPS 235: Learning and motivation. Purdue University, West Lafayette, IN.

Deatherage, S., Gilbert, E., Guebert, A., & Liu, Y. (2009, October). *Experience as a school counselor*. Guest presentation in EDPS 501: Introduction to school counseling. Purdue University, West Lafayette, IN.

Wachter, C. A.**, Deatherage, S.**, & Guebert, A. (2009, September). *School counseling and psychology*. Guest presentation in PSY 100: Introduction to the Science and Fields of Psychology. Purdue University, West Lafayette, IN.

Beavis, K., **Deatherage, S.**, & Suchak, M. (2009, August). *ALIVE@Purdue: Campus Connect suicide prevention and referral for Resident Assistants*. Presented to six halls at New & Returning Resident Assistant Training. Purdue University, West Lafayette, IN.

Teaching Background
Purdue University
 Fundamentals in Speech Communication, Teaching Assistant   2009-2010

Saint Joseph's College
 Introduction to Psychology, Academic Tutor   2006-2008
 Statistics, Academic Tutor   2006-2008
 Abnormal Psychology, Academic Tutor   2007-2008
 Systems and Theories in Psychology, Academic Tutor   2007-2008

Association Memberships
Student Member
 American Psychological Association, Division 17   2010-2016
 American Psychological Association, Division 19   2012-2016
 Association for Death Education & Counseling   2012-2016
 Purdue University, Counseling & Development Student Group   2010-2016
 Purdue University, Faculty Search Committee   2009-2011
 Purdue University, Multicultural Committee   2010-2016
 The Society of Federal Health Professionals (AMSUS**)**   2012-2016

Certifications & Licensure
American Red Cross
 Disaster Relief Mental Health Provider   2011-2016

National Board of Certified Counselors
 Counselor #268218   2010-2015

Indiana Department of Education
 School Counselor #1078260   2010-2012

Scholarships, Honors & Awards
United States Air Force
 Health Professions Scholarship   2012-2016

Purdue University
 Chi Sigma Iota (Counseling Honor Society)**:** *Pi Upsilon Chapter*   2010-2016
 Bruce Shertzer Graduate Scholarship in Counseling   2014-2015

Saint Joseph's College
 All-Academic Track & Field Team, *Great Lakes Valley Conference*   2006-2008
 All-Academic Cross Country Team, *Great Lakes Valley Conference*   2006
 Dean's Scholarship   2004-2008

Personal References
 Available upon request